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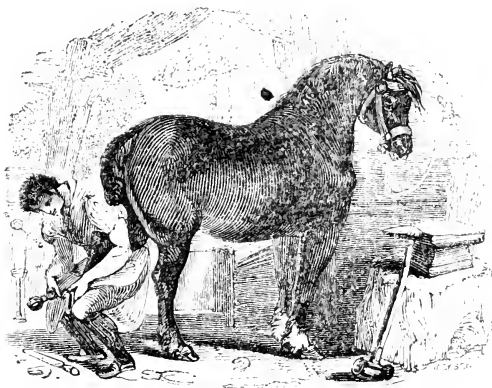
CLATER'S EVERY MAN HIS OWN FARRIER.

LONDON: SIMPKIN, MARSHALL, AND CO.

EVERY MAN HIS OWN FARRIER;

CONTAINING THE
CAUSES, SYMPTOMS, AND MOST APPROVED METHODS OF CURE,
OF THE DISEASES OF
HORSES AND DOGS.

BY FRANCIS CLATER,
AUTHOR OF "EVERY MAN HIS OWN CATTLE DOCTOR."



THE THIRTY-FIRST EDITION,
EDITED AND BROUGHT DOWN TO THE PRESENT TIME,
BY EDWARD MAYHEW, M.R.C.V.S.

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TO THE

THIRTY-FIRST EDITION.

It cannot be otherwise than highly gratifying to the publishers to perceive that their endeavours to render the present diminutive volume one of the best and cheapest practical Veterinary Manuals are fully appreciated by a discerning public. The thirtieth large edition has now been disposed of. The book in the hands of the reader has again been thoroughly revised and corrected by the gentleman whose name stands first in his peculiar branch of literature.

Canine Pathology is too much neglected by those who profess to study the Diseases of Animals. The publishers have, however, specially desired that this division of the present book should be fully brought down to the advanced and extended knowledge of the existing period. On the last-named branch of Veterinary science they have requested the Editor to bestow particular attention; and they are pleased to be enabled to state, that the latter portion of the volume has been almost entirely re-written.

January, 1861.

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INTRODUCTION.

THE ANATOMY AND PHYSIOLOGY OF THE HORSE.

To preserve a uniformity between the present work and that on "Cattle," this book will commence with a short sketch of the structure and proper form of the Horse, which adapt that animal to the various purposes to which his strength and speed are devoted: but, to avoid all tedious repetition, the introduction to the former work will be referred to for a description of general anatomy, or the structure and uses of bone, muscle, membrane, &c.; also for the functions of the different organs, as the heart, the stomach, and the lungs; including a history of the processes of circulation, respiration, digestion, &c.

A naturalist would say that the proper characteristics of the Horse are, three cutting or fore teeth in the upper and three in the under jaw; two tusks in the upper and two in the under jaw; a space between the tusks and the molar teeth or grinders; and six grinders upon each side of either jaw having several ridges of enamel running down the bodies of the teeth. The eyes are

large; the ears erect; the upper lip capable of more motion than is usual in herbivorous animals; the foot having but a single toe, and that toe enveloped in thick horn constituting a hoof; the tail surrounded by long hair; two teats; one stomach, but the lining of it composed of two different membranes; the stomach small, and the intestines proportionably large.

The Head.—The head of the horse should not be too large, for that usually makes the saddle-horse heavy on the hand. A head small in proportion to the size of the horse is a fair proof that he has some Eastern blood in him, and is not devoid of spirit. Occasionally the horse with a small head is vicious, and the shape therefore is of equal importance with the size of the part. A head, being of a fair proportion to the general make, and the bulk consisting in breadth of forehead rather than length of face—the eye likewise being a little prominent and lively—these peculiarities will in most cases indicate the manageable and serviceable horse. The breadth of the forehead, and the shortness of the face, should be particularly regarded and sought after for general and light, yet lasting work; but the narrow forehead and long face may do well in the quiet, strong horse of heavy work. For common purposes, a horse with a sinking or hollow across the nose, a little below the eyes, should seldom be chosen; it too often tells of ill temper, especially if joined with a more than usual display of the white of the eye. The line of the face should be nearly straight, yet a little prominence will generally characterize the good-tempered, good-feeding, strong, lasting, manageable, but not very light or speedy horse.

The Setting-on of the Head.—There are few things more connected with the comfortable use of the horse than this. A great deal of the pleasure of riding and of driving depends on the manner in which a horse carries his head. It must form a certain curve with the neck, so as to play easily, or the mouth cannot be light and pleasant. A horse boring with his nose before him will tire any man's arms, and will always be unsafe.

The Lips.—If we take the parts of the face individually, the lips are of more importance than is generally imagined. A firm and compressed lip is a pretty sure pledge that the muscles every where have considerable power. A horse with his lips flabby and hanging down is sure to be diseased or sluggish, or old. The sense of touch resides in the horse's lips, and, if they are pendulous, the energy is weakened; and this loss of energy will interfere with that delicacy on which the easy management of the animal so much depends.

The Nostrils.—So far as speed and spirit are concerned, the form of the nostrils is of considerable moment. The horse breathes through the nostrils; and therefore, as all the air which inflates the lungs must enter at the nose, a large nostril is indispensable. The capacities of an animal should control the purposes to which mankind compel him; and if a horse has much speed and endurance, a large nostril generally gives notice of his innate properties. The dimensions of this part constitute a main difference between the blood and the country horse. A brisk trot of a few minutes' duration will leave no doubt

about the expansibility of the horse's nostril. The thinness of the skin covering the nostril is another indispensable accompaniment of speed and wind. The nostril of the cart-horse, with its thick skin, cannot possibly expand to the extent which a blood horse requires when at full speed.

The False Nostril.—There is a curious formation connected with the nostril of the equine race which we do not observe in other animals. The whole of the external opening does not conduct to the cavity of the nose, but on the outer side there is a blind pouch, called the false nostril, and formed by a doubling of the skin. The use of these cavities is to admit of that distention which the habits of the horse necessitate. In the quiescent state, they permit of the openings being diminished, without destroying the symmetry of the face; and, being muscular, they, by their expansion, remove the atmospheric pressure from the true nostril, when the passage of a greater quantity of air is required. They permit the perfect adaptation of the parts, without interfering with that beauty of form which Nature, in all her works, studies to preserve. In smell they are not concerned, but in voice, neighing, &c., they are employed, giving character and strength to the sounds emitted.

The Cartilaginous Division of the Nostrils.—A piece of cartilage runs up the centre of the nose, dividing it into two cavities. There is, concerning this cartilaginous septum, or dividing wall, one circumstance which deserves remark. From the more flexible nature of the nostril, more of the membrane that covers it is seen in the horse than in the ox; and the

practitioner avails himself of this circumstance, in order to judge of the existence of inflammation in the deep-seated parts. The membrane covering this cartilaginous wall, is a continuation of that which lines the windpipe, lungs, and intestines; therefore, by its redness or its paleness, it denotes the conditions of those hidden structures.

The Eye.—No horseman needs to be told how justly he judges of the horse by the appearance and expression of the eye. The countenance of the human being is not a surer guide to the temper of a man than is the eye to that of the horse. We always like to see a large eye in the horse, and one a little prominent. The character of the eye is likewise to be observed. If the eyelid swells or projects over it, and gives it a sunken appearance; that eye has been inflamed. If one eye is somewhat larger than the other, inflammation has existed. This, however, will be discussed more fully in its proper place, when other matters concerning the eye will also be mentioned.

The Frontal Sinuses.—In the ox there is a free space under the forehead, and between the plates of the skull, running from the end of the nose to the very top of the horn. In the horse these cells, which are termed sinuses, extend but a little way up the forehead; and behind them, a complicated plate of bone defends the brain.

The Ears.—Considerable attention is always paid to the ears. They should be small, erect, and active. A large and lop ear is a sad blemish; and generally tells tales as to the breeding of the horse and his degree of activity. Some people have endeavoured

to remedy this by cropping the ears. It was once the fashion to crop all horses, whether the ears were large or small. It was a barbarous practice: it gave an unnatural appearance to the horse; it interfered materially with the hearing, for the vibrations of sound could not be so numerously and perfectly collected: it sometimes produced inflammation that led on to perfect deafness.

The inside of the ear is lined with soft hair.—It was placed there to keep out insects. The groom, however, finds great fault with it, and often cuts it out with his scissors, or singes it away with his candle. If he does not make very troublesome sores, and render the horse difficult to halter, he will at least expose the animal to annoyances from which nature had purposely given a defence.

The Tongue.—There are some peculiarities in the mouth of the horse with which horsemen should be acquainted. The tongue is considerably shorter than that of the ox. The horse does not, like the ox, gather its food with the tongue; neither does the sense of touch reside in the tongue of the animal; therefore the reason for the difference is perceived.

The Bars.—The palate is divided into numerous transverse ridges, called *bars*. They are duplicatures of the membrane of the palate, and contain a condensed tissue which is highly vascular. They are arranged in different directions; one half, which are placed forward, looking towards the throat; the other half facing the mouth. Consequently, they retain upon the tongue any portion of the food that has been perfectly masticated; and until the muscles of degluti-

tion are called into action, there can be no danger of the morsel passing onwards towards the windpipe, or chance of its falling from the mouth.

The Soft Palate.—The horse is the only animal who cannot, except under the most violent excitation, vomit through the mouth. This peculiarity is caused by a species of curtain at the back part of the tongue, which separates the mouth from the gullet. It hangs down from the backward edge of the palate. There is, in other animals, room between the bottom of the curtain and the tongue for the food to be returned; therefore, in them, whatever the stomach casts up, passes through the mouth. But, in the horse, the curtain forms a perfect division, and rests upon, not only the back part of the tongue, but against the forward portion of the larynx. It is so contrived that, when the food has been gathered and fully masticated, the morsel is, by the action of the tongue, pressed against the hard palate, and is thus propelled backward, or it is pushed against the curtain or soft palate, which gives way; but if the pressure comes on the other side, the inclination of the curtain backwards effectually prevents it yielding, and the contents of the stomach are carried outwards through the nostrils. It is not, therefore, any thing about the palate which renders the act of vomition so difficult in the horse; the formation of the palate simply forbids passage by the mouth. But the difficulty of vomiting in the horse depends on the peculiar construction of the stomach, which shall be described in the proper place. The length and singular attachment of the soft palate, however, prevents the horse from breath-

ing through the mouth, as well as causes him to vomit through the nostrils.

The Teeth.—The manner in which the age of the horse may be determined by an inspection of the teeth will be presently considered; but there is something in the situation and construction of these parts that deserves notice. The nippers placed in the front of the mouth, in order to cut the grass, are covered with a hard substance called enamel. The enamel passes over the top of the tooth, to be indented and sunk into its centre, forming a pit or hollow. In process of time, however, this pit or hollow is worn away or ground out; thus the black marks in the fore teeth, which were nothing but the inside of these hollows, rendered dark by the food getting within them, gradually disappear.

The Tushes.—There is a small space between the nippers and these teeth, as well as between the tushes and the grinders. The tushes are weapons of offence and defence, and very much of the severity of the enraged horse's bite depends upon these teeth.

The Grinders.—Behind the tushes are the grinders, and they are very curiously constructed. It would not be enough for the food of the horse to be cut and bruised; it must be actually ground down, in order that it may be digested. The back teeth are so formed as to constitute the most perfect grindstones that can be imagined, by means of the roughened surfaces which they present. That these surfaces may not be worn down, or even worn smooth, the enamel is wove in with or twisted about in the substance of the tooth, and is externally covered with a very tough substance

termed the *crusta petrosa*. The body of such a tooth is long wearing down; and when it does wear away, the bony matter inside, and the *crusta petrosa* outside, yield first, and the enamel is left projecting; so that they will always present unequal surfaces. To this must be added that they are formed with long fangs and are pushed upwards into the mouth after they are fully cut; and the grinding surfaces of these teeth consequently will stand at nearly the same height so long as the horse may live.

Wolves' Teeth.—There is often found before the grinder an additional tooth, which is always of small size: strange stories are told of the injury these trivialities sometimes occasion. There is no proof of the mischief which they accomplish. They have been seen in the mouths of horses sixteen years old, that have never appeared to suffer the least inconvenience. Should it ever seem desirable to remove them, this may be easily effected with the common keyed instrument used for extracting human teeth, or even with a pair of small pincers, for they are not firmly rooted in the jaws.

The Lower Jaw.—Some attention should be paid to the size of what is called the *channel*, that is, to the space between the branches of the lower jaw. If it is narrow, the head will sit awkwardly; for the rounded termination of the windpipe cannot be readily received between the approximated branches; the head will then always be poking out, diminishing materially the beauty of the horse, and being a sad inconvenience to the rider. There are few things of so much importance to the pleasure of the rider or driver,

as the setting-on of the horse's head—and this depends as much upon the width of the channel, as upon the form of the neck.

The Neck.—On the shape of the neck I need not say much: it should be proportionate to the body; neither too long nor too short. Plenty of muscle, nevertheless, should always be found at the base of the neck; otherwise there will be a looseness in the part disagreeable to the rider. An *ewe-necked* horse is an unpleasant goer; for there cannot be that curve formed between the head and the neck on which the management of the mouth essentially depends.

The Chest.—Although many horsemen too carelessly regard the chest in their examination of the horse, it is by far the most important part about the animal, for it contains most of the vital organs. There are two main things to be considered about the chest of the horse. In the first place it must be capacious. The size of the chest portrays the dimensions of the lungs. Big lungs will allow all the blood to be easily oxygenated, and thus enable the horse to live through a struggle which would more than incapacitate his narrow-chested competitor.

There is, however, a point connected with this subject which is frequently overlooked—the form of the chest. We want the chest to accommodate itself to the different degrees of exertion. It has not only to prepare and circulate sufficient blood, but has to do this when the energy is exhausted by rapid motion. Therefore we must have a *deep* as well as a *wide* chest. A circular chest can never change its form so as to make it contain more than its passive

shape accommodated. A deep chest, however, may enlarge, it may become more circular; with every movement of the ribs, therefore, the lungs can expand, admit air, and arterialize the blood. Wherefore, we sanction the circular chest in the heavy draught horse, whose labour is slow and methodical; but from the hackney to the horse of light work, we occasionally demand both pace and continuance.

For another reason we want the deep chest. The circular chest will be weighty in front; its very form will require thick and heavy shoulders. This will give a slowness of action, a battering of the fore feet, and a want of safety. The deep chest usually has its principal fulness behind the elbow, and the absence of weight in a forward position renders the paces light and graceful: therefore the form for saddle purposes will be that of moderate depth at the girth, and a barrelling behind the elbow.

There ought to be plenty of room; the chest should be long; the ribs should be somewhat apart from each other, so that they may reach back towards the hips. We have then more room for the organs of respiration. The spine is then firmly supported, and the lungs are better able to discharge their healthy functions. Therefore, a horse *ribbed home*, or having but a small space between the last rib and the hip-bone, is almost sure to be strong and enduring. He may not be very speedy; but he may be depended upon for a good constitution, and as being capable of every ordinary service. If we require from the horse only occasional exertion, we may excuse a little hollowness of the flank; for there will be more room for

the full stretch of the hind extremities, and, therefore, for a longer stride, and greater speed.

The Withers.—There are a great many important points connected with the spine. The withers are the upright projections of the six first bones of the back. High withers have, in the opinion of every judge of the horse, been associated with superior action. In proportion as the withers are high, the muscles connected with them and the shoulder-bones have the advantage of more extensive motion. Therefore, if the other parts correspond, we have generally high action connected with the withers. For the horse of quick work, high withers are desirable; but not for animals of heavy draught; for in proportion to this power of elevation, there is usually a lightness, which would be a considerable defect in him whose excellence depends on the weight which he is able to throw into the collar. High withers would be a defect rather than an excellence in the dray-horse. In race-horses, too, the withers may be too high, as, by causing the action to be lofty, this formation diminishes the length of the stride.

The Spine of the horse is a beautiful contrivance. The chest and abdomen contain organs of the greatest importance, and essentially connected with life. If they were suspended from an unyielding bar, as of iron, the concussion would be fatal. If the back were unyielding, who could bear to be jolted upon the horse for a single mile?—On the other hand, if it yielded too much, it would betray a weakness incompatible with strength. The spine is therefore divided into numerous bones, forming so many joints; each

of these joints possesses a little motion; the aggregate motion of the whole, however, gives sufficient ease to the rider, without destroying the firmness of the back. The strength of the spine is secured by a mechanism that deserves peculiar attention. Small processes project and repose within indentations suited to their figure; moreover the round head of one bone accurately corresponds with a cup or hollow in that before it, and between them is placed an elastic substance; there are also strong ligaments as well as short muscles above and below, and on either side, so that, although we sometimes hear of a fractured spine, the joints are rarely dislocated.

Man, however, will sometimes overload the horse, or urge him to too great exertion: then there is so much stress on these joints, that the ligaments are injured, and inflammation ensues; bony matter is thrown out, and the joints are destroyed. The back then becomes stiff, and the horse turns with difficulty; he will rarely lie down: he is "*chinked in the chine*," and materially lessened in value.

The Length of the Back.—Few, except those who have closely examined the structure of the horse, are aware of the difference which exists in the length of back among animals of the same height. Compare the short Suffolk punch and the lengthy Cleveland bay in this respect. There can be no doubt that the long-backed horse is easier in his paces, for a long spring has a gentler motion than a short one. The long-backed animal will usually be speedy, for he will be able to bring his hind legs with more advantage under him: but just in comparison to the length of

the spring will be its weakness; in proportion as the distance between the hind and fore legs increases, will strength be wanting in the back. On the other hand, a back a little too short may promise strength; but it will be accompanied with rough action, by a deficiency of speed, a tendency to unsafeness, and particularly to overreaching. However, for general purposes, a short rather than a long-backed horse is commonly preferred, as possessing all the strength that can be desired; a hardihood of constitution which in a manner bids defiance to disease; and as much of speed as is usually required.

The Line of the Back.—The proper form of the back is a depression immediately behind the withers, and then a straight or gentle-rising line to the loins. There are two deviations from this, the *saddle* and the *roach* back. In the saddle back there is a hollowness. This betrays some degree of weakness, but is accompanied by easiness of action, and generally with an arched neck. It is scarcely an objection if the horse has to carry a light weight; and it gives nobleness to his appearance in single harness. The *roach*-backed horse, whose back bends up, is dear at any price; for there is no keeping the saddle upon him, or preventing his back being galled: his hind legs are awkwardly doubled under him, his head is low, and he is heavy on hand.

The Loins.—The loins should be most carefully examined. They are rightly considered as significant of the general strength or weakness of the animal. If they are broad and muscular, he will be equal to considerable work: but, if there is no substance

about them, he is of little worth for the saddle or the collar.

Referring the reader to the Treatise on Cattle, for an account of the contents of the chest and belly, it will be sufficient here to notice a few peculiarities in the structure of these parts in the horse.

The Stomach.—There is a strange difference between the four stomachs of the ox and the single stomach of the horse. That of the last animal is comparatively smaller than that of any other creature. It will not contain one-half of that which the ox would eat at an ordinary meal. The horse is essentially an animal of speed, and is liable to be called on to exert himself at all hours. His stomach is placed close against the diaphragm, which is a principal agent in respiration. In every act of inspiration the diaphragm presses against the stomach, and more or less displaces it. If the stomach were large, this singular muscle would have to move it when full, and the horse would be soon exhausted by the violence of the requisite exertion. Therefore this small stomach was given to him, that he might with greater ease display the speed which is his most striking characteristic. He can even work upon a full stomach better than most animals; but many a horse is destroyed by being hurried after a plentiful meal.

The stomach is not only small, but its structure is singular. One half of it is cuticular, like the whole of the paunch of cattle, and constitutes a mere reservoir for the food. The food, after it has been chewed, is retained awhile in this cuticular portion, in order that it may be macerated. After that, it passes into the

other part of the stomach, where the process of digestion commences. Therefore it is improper to give the horse for a meal more food than the cuticular portion of the stomach could hold. This sac has also a peculiarity in the arrangement of its muscular coat. The layers of fibres which compose it are so disposed that the opening into the stomach is much stronger than the exit from it. The former opening could not therefore be easily forced open in case of revulsion, but the stomach would sooner be burst (as indeed often happens) before the entrance to the sac would give way. This is the secret of the horse not being able to vomit.

The Intestines.—Digestion continues to be carried on in the intestines after the food has passed the stomach. There are six intestines—three of which are large, and three small. The small lead from the stomach, and are named, the duodenum, the jejunum, and the ileum. The large terminate at the anus, and are called the cæcum, the colon, and the rectum. The duodenum or first gut is larger in the horse than in most other animals. The process of digestion still proceeds in the intestines, and is not perfected until it has passed through the larger intestines. The duodenum has the pancreatic and biliary duct emptying into it. The jejunum in the horse is a mere arbitrary name copied from the human anatomy, and given to the beginning of the ileum, which is the longest of all the intestines, and empties into the first of the large bowels. The *cæcum*, a blind pouch often called the *water-gut*, is continuous with the small intestines; and the more fluid part of the food seems to fall into

the cæcum, which will contain at least four gallons of water. It is thrown into cells like the colon which are plainly designed for the same purpose, the retention of the aliment. The *colon*, which is of an enormous size in the horse, will usually contain about twelve gallons of fluid. Here a provision is made for the yet imperfectly digested food. The colon is curiously puckered into a great many deep cells, in which the food is for a while detained. When the contents of the stomach, after having passed through all this complicated apparatus, have at length reached the *rectum*, or last intestine, a very small portion of refuse will remain, and that is evacuated as dung.

The Liver.—Two fluids enter the duodenum by the same small orifice, in order to contribute to the process of digestion. The one is called the pancreatic juice, and is in nothing different from that which has been described in cattle; but the bile in the horse comes immediately from the liver, instead of any portion of it passing into a gall-bladder. The horse has no gall-bladder: his stomach is small; it must, therefore, be oftener replenished; the food must be oftener passing out of it; and there can be no necessity for the gall being detained in any reservoir for use at a distant time.

There is nothing peculiar about any of the other contents of the belly, and therefore the diseases of the animal will be immediately considered.

EVERY MAN HIS OWN FARRIER.

CHAPTER I.

ON INFLAMMATION.

A VERY great proportion of the diseases of the horse are connected with *Inflammation*; for the heart and arteries are large, the arterial system is strong, and the animal is exposed to many causes of irritation. Inflammation is an increased flow of blood, inducing an unnatural secretion; the heart or the vessels act with too much energy, and the blood is driven along too rapidly, or in too great a quantity. Inflammation may be either *local* or *general*. We may have inflammation of the eye, of the lungs, or of the foot, and in each of these the constitution may not be much affected: the inflammation is then said to be *local*: but, after a while, the vessels of the whole frame will take on the same action as those of the diseased part, and *symptomatic fever*, or a general inflammatory state is produced. In some cases the action will be general from the beginning, or rather, we are unable to ascertain the part which was first affected: this defused form of inflammation is termed *fever*. All these will in turn pass in review before us.

Inflammation may be either acute, subacute, or chronic. It may have suddenly arisen, may be exceedingly violent, and may endanger life; but by prompt treatment it may speedily disappear, leaving scarcely any trace behind. At other times it may rapidly destroy the part by its intensity. This is called acute inflammation. Sometimes it will have gradually commenced;—it may never reach any great degree of intensity, but it is evidently doing permanent mischief:—it is altering the structures, as well as disarranging the functions of organs. This kind of inflammation lasts a long time, and hence is termed chronic. The subacute is a variety not very well defined, but it runs between the two which have been already mentioned.

The treatment will vary according to the nature of the organ attacked and the violence of the inflammation; but among the successful opponents of inflammation when established, are bleeding and purging, although it is a better plan to support the strength in the first instance and thus afford nature a chance of mastering the disease.

BLEEDING.

In general inflammation blood should be extracted from a large orifice, and the jugular vein is the most convenient vessel to extract blood from, because it may be readily got at and easily fastened up again. In violent inflammation of any part which has acutely involved the whole system, the practitioner should bleed. The precise quantity of blood that

should be abstracted, cannot be previously determined; but the old rule was that the finger of the operator being kept on the artery, the blood should be permitted to flow until the pulse became materially softer, or fluttered; but the better and the newer practice seems to be to take only such a quantity as causes the horse to sigh, yawn, become quiet, or exhibit an altered aspect and disposition. These are the general rules in the treatment of inflammation—to bleed promptly—until the system is affected, or until the excited character displayed by the animal seems changed.

Of equal importance with it is the quickness with which the blood is abstracted. The loss of one quart, poured out in a full stream, from a large orifice, will affect the horse more than double the quantity suffered to escape in small current, from an insufficient opening. The fleam or the lancet should, therefore, be sufficiently broad-shouldered.

The lancet is the most portable instrument; and, after a little practice, may be even more depended upon than the fleam.

When a sufficient quantity has been taken, and *before the blood is sponged away from the neck*, the edges of the orifice should be brought together. *This should be done without lifting the skin more than is necessary*, and by means of a rough or an angular-pointed pin, passed through the integuments, around which a small quantity of tow is twisted. After this the horse's head should be tied up, and on no account ought it to be turned out to grass. Care should be taken not to pin any hair in with the wound, for

bleeding in the horse being often followed by bad consequences, every precaution is required to prevent such results.

Should swelling appear, then the lips of the wound will open; a thin fluid is discharged from the wound; the neck feels hot; when the pin ought to be without delay withdrawn, and the part should be immediately stimulated by the application of a mild blister.

Sometimes the first indication of an inflamed vein is a swelling of the part, which often increases rapidly above the seat of bleeding; because the inflammation of the vein obstructs or stops the flow of blood. When this is the case, it becomes a somewhat serious affair. The vessel feels like a hard cord under the fingers, and if left alone, abscesses form along its course, and the brain may at length become affected.

The head of the horse should be tied to the rack, and his diet consist wholly of mashies or gruel, so as to avoid the movement of the jaws as much as possible. The orifice should be kept open, though it seldom is disposed to close, and a blister, without loss of time, should be applied over the enlargement. The blister should be washed off the second day, and repeated; only on the second occasion it should embrace a larger surface; and blister after blister, as quickly as the circumstances of the case will allow, should follow one another until the desired effect is attained. If any matter exude from the orifice, it may be enlarged, and, if any pipes or sinuses form, these should be laid open. The abscesses merely require to be treated after the manner recommended under that head in another part of this work.

With this treatment, the horse will frequently be fit for work in about a month or two, although the vein will generally be lost; yet the swelling will subside, the blood find new channels, and little after-inconveniences will ultimately be experienced. The horse, however, that has lost a vein, will not be suited for fast work until twelve months have expired. Slow work he may perform, but the collar should be discarded for a breast strap, and the horse must on no account be turned out to grass.

When there is much mange about the neck, there is always considerable hazard in bleeding from the jugular. The skin is already in an irritable, if not inflamed state: this is much increased by the wound inflicted by the lancet; and troublesome swellings, sinuses, and sloughing often ensue. Fortunately, however, bleeding is never imperative in this disease.

If the practitioner should fail to open the vein at the first attempt, it will be better to bring the second thrust exactly above the orifice he has made, and to strike again more gently upon it, than to make a fresh wound; but, if it is necessary to have recourse to bleeding three or four hours after the first operation, the old wound should not be re-opened, but a new incision always made.

In cases of local inflammation, the bleeding should take place as near as possible to the diseased spot. It will be easily comprehended that by acting upon the immediate part we gain all the good effects of general bleeding at a much less loss to the animal system. This object may be accomplished in several ways. Punctures or incisions may be made, and

fomentations or a poultice applied over them to promote the bleeding. A piece of a vascular surface may even be cut out, as is generally done when the horse is bled from the foot, or a vein in connexion with the diseased surface may be opened. The proper bleeding-places will be pointed out as we consider the inflammatory diseases of different parts.

PURGING.

There are few medicines so abused by the groom, and sometimes by the proprietor of the horse, as purgatives. They are given without any rhyme or reason, and sometimes in fatal doses. Perhaps it may be affirmed that more horses are destroyed by physic than by any one disease to which they are subject. On the other hand, there are no medicines so useful as purgatives when judiciously employed. They are especially useful in inflammatory complaints. They produce, while acting or preparing to act, a kind of nausea which is attended with a general relaxation, highly to be desired in complaints that are accompanied by general excitement of the nervous and vascular systems. They remove from the stomach any cause of irritation which may have existed there, and which might prolong, if it did not produce the complaint. They diminish the temporary supply of nutriment to the frame—for the food is hurried along the intestines and expelled, instead of being converted into chyle and taken up by the lacteal absorbents; and more especially they lessen the quantity of fluid circulating through the system. The bulk of aqueous

matter discharged by the action of a purgative is sometimes enormous; being, in consequence of the stimulating action of the purge, poured forth by the secretive membrane lining the intestines.

In the early stages of fever, physic must be given with some caution; but, in local inflammation, excepting where the sympathy between the injury and the general system is apparent in evident debility, it is sometimes beneficial. When the lungs are inflamed it is a common saying, "purge and kill," and this maxim has almost grown into a rule of practice.

Horses that are fat and plethoric are rarely benefited by physic, yet more so than by bleeding. The regular purging at certain times of the year cannot be commended. It is a good maxim "to let well alone;" yet at all times mild physickings are much more harmless than small bleedings, for the first simply evacuates the bowels. The effect of bleeding on a fat horse is doubtful even *at the time*, and most certainly injurious *afterwards*: for it takes that fluid from the animal of which a fat horse always has too little, and may generate the weakness which shall terminate in dropsical effusion or lead to various ill effects.

In greasy swellings of the legs; lameness attributable to the joints; old cough; worms; and mange, physic may occasionally be useful.

The purgatives of the horse are few in number. The superior efficacy of the *Epsom salts* was spoken of in the work on *Cattle* as applicable only to the ox; they are uncertain in the *Horse*, although given in enormous doses; and occasionally they will produce a

terrible attack of colic. They are useful only in clysters. *Glauber salts* have no better or more certain effects. *Castor oil*, mild and harmless as it is in the human being, is in the horse seldom to be relied upon where an immediate result is desired. *Linseed, olive, and neat's-foot oils* are better things; they will rarely do harm, but they are improved in their action by a drachm of chloroform being added to the pint dose of either. *Almost the only purgative that can always be depended upon is Barbadoes aloes.*

There has been a great dispute about the kind of aloes. The Cape is the cheapest, and the Barbadoes usually the dearest. The Barbadoes are the most certain in their effect, and can alone be depended upon. The Cape will sometimes gripe, but the Barbadoes will less frequently do so.

The following will be a good physic mass, though the animal being subjected to constant work is more likely to be ill through exhaustion than to be disordered by repletion.

RECIPE (No. 1).

Physic Mass.

TAKE—Barbadoes aloes, very finely powdered, fifteen pounds ;

Ginger, powdered, one pound ; and

Soft soap, seven pounds and a half :

Beat them well together, and keep them in a jar closely covered.

A very mild ball of this mass will weigh three quarters of an ounce ; the quantity may be increased to an ounce and a half, beyond which the dose should not be carried, except under the direction of a practitioner.

In some cases, as in inflammation of the brain, it is desirable that the physic should act as quickly as possible. There is another purgative which may then be resorted to, but which, from its irritating properties, should otherwise be avoided, and that is, the croton nut, or oil.

The following would be the prescription :—

RECIPE (No. 2).

Very strong Physic Ball.

TAKE—Physic mass, 10 drachms ; and
Croton nut, from 10 to 15 grains :

Beat them together, and make them into a ball, or dissolve them in warm linseed tea.

This dose may be given in the first instance, if it is wished to produce purgation without loss of time ; but if medicine has been already administered, then ten grains of the croton nut may be made into a ball with a little linseed meal and honey.

The *preparation* for physic is as important as the physic itself. A horse should, when possible, be well mashed for twenty-four hours before he has physic ; mashes made of bran and water, should also be given during the operation of the laxative.

The management of a horse after it has received physic is also deserving of consideration. If the weather and the disease will permit, the horse should be walked out for a quarter of an hour three or four times on the day when the physic is administered. On the following morning he should be exercised again ; but no quicker pace than a walk must be allowed. If at the end of the second day the physic

should not operate, nothing should be immediately done except to administer injections of warm water, in each of which half a pound of Epsom salts has been dissolved; these will generally do good, and can hardly be prejudicial. If all fails, another ball may be given four days after the first was administered, should such a measure be absolutely required.

As soon as the horse begins to purge, all exercise should cease. The horse, upon exertion, certainly purges more, but more than any rational man would wish; he is likewise often griped; now and then inflammation of the bowels supervenes—an inflammation that is not easily subdued.

From the time of administering the physic the water should be given to the horse lukewarm, if he will drink it so; at all events its coldness must be removed. No corn should, as a general rule, be allowed until the action of the medicine has ceased; however oats, if imperative, may be mixed with bran, either dry or made into a mash, as the animal can be induced to eat it.

Back Raking.—The introduction of the hand into the rectum, and the removal of any dung which it may contain, is a useful operation. It should be always practised when physic is slow to work: not only a portion of dung is removed, but the excitement of the rectum, by the introduction of and the movement of the hand, extends to other parts of the intestinal canal, and they are disposed more readily to respond to the stimulus of the purgative.

Injections are too much neglected, especially in cases of retarded purgation, and in those where speedy

purgation is required. Warm water, or soap and water, or a solution of Epsom salts, half a pound at a time, answer very well in ordinary cases. Half a pint of the spirit of turpentine, combined with two quarts of soap and water, is more active, and in flatulent colic may be of much use. In gripes, opium is often excellent in its action, administered in this form; but injections can be infinitely varied, and their varieties will hereafter be dwelt upon. In every large establishment, the patent injection pump has superseded the use of the old bladder and pipe, or even of the syringe, on account of the ease with which any quantity of fluid may be introduced by its means.

CHAPTER II.

PHRENITIS (INFLAMMATION OF THE BRAIN);

STAGGERS.

THE term *staggers*, by which several of the diseases of the head used to be designated, should now be completely laid aside. It was derived from the staggering gait which frequently accompanied particular affections: but several diseases are occasionally accompanied by such symptoms, and these by the retention of the name may be confounded.

Inflammation of the brain may be either of its substance or its membranes, or it may be of both. It may be produced by over-exertion in close and sultry weather; especially if the horse is gross, and has lately had but little work. It is sometimes consequent

upon other diseases. It may spring from metastasis, or change of inflammation from one organ to another. Inflammation has suddenly left the bowels, the foot, or the lungs, and attacked the head; but this disorder is oftener connected with some affection of the stomach.

A distinction should be drawn between inflammation of the brain and congestion of that organ. In the latter case the activity is decreased; consciousness, if not entirely lost, is in a great measure gone. During the first symptoms of compression of the brain the horse is dull, hanging his head as if he were half asleep. In the midst of eating, a lethargy will come over him; he will droop his head, with his tongue hanging out of his mouth, the saliva dribbling from it, and he will stagger or almost fall. If he is suddenly roused, he will look vacantly around him, and dose again. If he falls, he will appear to be frightened and scramble up, but it will only be to stagger and to fall again. This state is caused by determination of blood to the head, pressing upon the source of the nerves, and producing unconsciousness.

This continues for twelve or for twenty-four hours, and sometimes even longer. Then the scene suddenly changes. The nature of the disorder has altered, and to congestion inflammation has succeeded. The horse is all alive; his ears are pricked; his eyes are glaring; he is shifting his posture every moment, pawing and stamping. For a little while he seems to know where he is and what he is about, but that soon passes over: his flanks heave; his nostrils expand; he whinnies, roars, dashes, plunges, bites, and kicks, without object and without consciousness. There are periods of

remission. He exhausts himself by the violence of his efforts, and remains tranquil for a brief time; so he goes on, until he has probably ruptured some vessel, and then perfect stupor ensues; or he wears himself out by his continued struggles.

If he is seen in this violent state, there can be no doubt about the disease: it is pure *phrenitis*, or *inflammation of the brain*. Then, with due regard to his own safety, the practitioner must endeavour to open both jugulars, and to let the blood flow as long as it will. The only hope is in producing faintness and temporary collapse. If it can be effected, in some moment of comparative quietude, a purgative should be administered in the form of a strong solution of aloes, with croton farina. The following is a good formula for such an occasion:—

RECIPE (No. 3).

Strong Physic Drink.

TAKE—Barbadoes aloes, one ounce ;

Gum-arabic, one ounce ; both being powdered :

Pour on them a pint of boiling water. A portion of the aloes will be dissolved, and the greater part of the remainder suspended by the solution of the gum. Ten ounces of this may be taken, and ten grains of the farina of the croton nut thoroughly rubbed down with it, and the rest cautiously added; the entire mixture for one dose should be given every twelve hours until it operates.

If this cannot be administered in consequence of its bulk, thirty drops of croton oil should be given in the most convenient form possible. If the horse seems to recover a little from the attack, he must be let alone; his diet should be very spare, and must consist of

mashes, by which his fever will not be increased while his bowels are kept sufficiently relaxed.

We know but of two diseases with which it is at all possible that this complaint can be confounded—they are colic and hydrophobia; but in the first the horse strikes and stamps his belly; he rolls rather than plunges, and looks piteously at his flanks, and is perfectly conscious. In hydrophobia, although the animal plunges about, and does much mischief, there is method and perfect consciousness in that mischief. Any sudden and violent disorder may to a degree approach in its symptoms to inflammation of the brain; but scarcely any to that extent which can be positively deceptive.

The most puzzling case is when congestion of the brain is present. It is absolutely necessary to get at the cause of the stupor, or the mode of treatment cannot be determined. If the horse is at grass, the practitioner should carefully inquire whether he has been lately turned on to a richer pasture; if he is in the stable, whether he may have got at the corn-bin and gorged himself; whether he has been lately worked long and hard on an empty stomach, and then fully fed. If the cause can be traced to an overloaded digestion, water must be withheld, for it would swell the mass which is already distending the stomach. A strong purgative (Recipe No. 3), to which may be added two drachms of carbonate of ammonia and three ounces of sulphuric ether, should be administered without delay, and the stimulant (omitting the purgative) ought to be repeated every hour. The body should be clothed, the legs ban-

daged, and friction applied to the skin. The animal ought to be got into a loose box, and, if possible, a little very gentle walking exercise enforced. Enemas of turpentine ought to be thrown up every hour at least, especially if they are not retained. Should no improvement be witnessed in six or eight hours, a pint of oil, in which a drachm of camphor and the same quantity of chloroform has been dissolved, may be given, and embrocations applied to the legs and abdomen. The carbonate of ammonia, after the second trial, may be changed for the chloride of zinc, a scruple being dissolved in a pint of cold water, and the sulphuric ether should be persevered with. After another six hours the horse may be bled; but it is not well to do this at first, as the strength is wanted to rouse the system if possible. Now, however, fearing the supervention of inflammation, bleeding is adopted; not because it is absolutely necessary, but because we wish to anticipate the consequences we know are too likely to ensue. Till inflammation threatens, stimulants must be employed; but at the same time, knowing the probable issue, the horse must be carefully watched, and on first perception of the eye brightening, the breathing becoming more sharp, the pulse quicker and harder, and the surface of the body hot, depletive measures must be adopted, although the chance of saving the animal is indeed remote, and the prospect of its so far recovering from the depletion as to be of service to its owner almost hopeless.

If some other disease has preceded the attack, then the circumstances of the case will suggest the treat-

ment which cannot here be fully described. On such occasions, however, the stupor too frequently proceeds from debility, and the attendant should be cautious how he sets to work depleting a system which may already suffer from exhaustion.

When an attack of phrenitis is anticipated, let every means be employed to draw the blood from the brain. Stimulants must not be given, but purgatives, as before recommended, should be administered. The feet and belly, and even the haunches, should be rubbed with embrocation, or a blister even may be applied. The liquor ammonia, sprinkled on a cloth several times doubled and covered by another, held close to the abdomen, will be a speedy and effectual counter-irritant. A sheepskin to the loins is also of benefit. Sedatives are required. Digitalis in drachm doses every fourth hour, combined with a drachm of aconite root in infusion, may do some good. Warm water to the head, in this stage, has been of service. Enemas should be copious and frequent; but, after all, it is seldom that the issue is successful, or that many of these directions can be followed, because of the violence symptomatic of the disease.

CHAPTER III.

VERTIGO (MEGRIMS).

THIS is the mildest form under which congestion of blood in the vessels of the brain shows itself. A horse will commence his journey apparently well, but

the day is hot—he is a little too full of flesh—he has not been lately in full work—or he has been driven a little faster than usual—or he wears a collar a little too tight: all at once he begins to falter—he shakes his head repeatedly—looks around him half unconsciously, or perhaps stops short and trembles. If the driver is aware of what is the matter, and will give him a minute's rest, he will sometimes recover and go on again, although not quite so freely as before. But at other times, either without warning, or any warning that the driver has observed, he drops—he lies for two, three, or five minutes apparently insensible, and then scrambles up, and goes on again; or he falls, and violent struggles commence, which, however, in a few minutes subside. The horse gets up, looks wildly about him, and continues his journey; yet somewhat oppressed and exhausted: but he will occasionally drop and suddenly expire.

The method of giving present relief is simple and effectual enough. The journey should be discontinued, and the horse led to the nearest stable. If that be impossible, the collar should be looked to and the bearing-rein let down. A wet cloth should be kept upon the head, and the pace should be more moderate. Bleeding is not necessary; it has been largely tried, and has been proved to do no good.

When the horse gets home he should be well mashed, and, if he can be spared, a dose of physic should be given. When the physic has set, some alterative medicine may or may not be serviceable; but should any be given, a ball of the following

nature may be administered every night, for ten days or a fortnight.

RECIPE (No. 4).

Alterative Ball.

TAKE—Powdered nitre, two drachms ;
Sulphur, two drachms ;
Black sulphuret of antimony (black antimony), two drachms ;
Linseed meal, two drachms :
Beat them into a mass with palm oil.

A horse that has once had megrims is generally subject to them again ; and the honest man will not sell, and the prudent man will not keep, the wretched animal likely to injure himself or others when it may be attached to an ordinary vehicle.

CHAPTER IV.

STOMACH-STAGGERS.—INDIGESTION.

THE primary symptoms of this disease have been sufficiently described. In a confirmed case of this nature, however, the staggering and unconsciousness, with hard breathing and fixed eye, continue, and the animal becomes more and more insensible and helpless. These drowsy symptoms sometimes subside, and are succeeded by violence, of the same kind as that of phrenitis: this may be followed again by stupor. Or the animal may perish without the violent stage appearing.

It is essentially necessary to ascertain the cause of this disease. A very frequent one is over-distention of the stomach. The horse may have got loose in the night, and filled himself with corn, beans, or chaff; he may have been worked longer and harder than usual, and have had a double feed given him upon reaching the stable. The powers of the stomach having been exhausted with those of the frame, have been consequently unable to act on its contents, or to expel them. If no positive information can be obtained, the appearance of the horse may direct the judgment as to the probability of these having occurred; for the animal will be evidently bloated, much swollen, and the lethargy will be more complete when it originates with over-gorging than when it springs from other causes.

This disease has often made its appearance in large establishments, where horses have been kept long fasting, and then allowed an unlimited quantity of dry food. In these cases the desire for provender has been awakened by prolonged abstinence, and has then been unrestrictedly gratified; the brain has become affected from the pressure of the stomach upon the diaphragm obstructing the circulation and preventing the perfect oxygenation of blood.

This disease, however, will sometimes occur from simple indigestion without such strange distention of the stomach; yet not without evident affection of that viscus. When the hours of feeding are irregular, the stomach becomes weakened by being long empty, and is then oppressed even by an ordinary meal. This happens to farm horses after too long a day's

ploughing, and especially if the food with which they are afterwards supplied be not very good. It is foolish economy to keep the half-mouldy provender of the farm for home-consumption. Old horses are particularly subject to stomach-staggers from the digestion sharing the general debility of the system. They are so, especially if they should get a few days' rest, and be fed somewhat better than usual. The weakened stomach will not be able to bear the unusual stimulus, and indigestion will ensue. In some cases stomach-staggers has prevailed as an epidemic, and has appeared amongst horses at grass, as well as in stable. Then though the symptoms have been very similar, yet they could not be referred to distention, but might, in a great measure, be traced to a loss of vital energy.

The treatment must be principally directed to the removal of the offending body. If there seem depression of the system, bloodletting should be abstained from. Liquids ought to be withheld, save where they are required in the form of medicine, and no time should be lost in administering a diffusable stimulant, consisting of sulphuric ether, four ounces; chloride of zinc, one scruple; water, one pint. The effect should be watched, its benefits being first seen on the altered countenance of the animal.

The above drink may be repeated every half-hour, should no amendment ensue upon its administration. The relief of the stomach will be shown by the abatement of the symptoms long before the bowels act, and to relieve the stomach every artifice must be employed. When this is accomplished, the diet should

consist of green food, carrots, or mashes, in spare quantities; and the following ball may be administered daily, for three or four days.

RECIPE (No. 5).

Tonic Ball after Indigestion.

TAKE—Powdered nux vomica, half a drachm;
Sulphate of zinc, one drachm;
Extract of gentian, two drachms;
Powdered ginger, one drachm :
Beat them together, and make them into a ball.

CHAPTER V.

RABIES, OR HYDROPHOBIA (MADNESS).

THERE is a disease, and one of the nervous system, which may be occasionally confounded with phrenitis, and which may now be conveniently considered, viz., Rabies.

If a horse has been bitten by a mad dog, or his muzzle (the corners of the mouth having been galled by the bit) has been licked by one of those dogs which are within the stable, and which has become mad, the horse will most probably, in his turn, also become rabid. The disease will suddenly appear, and at the commencement, bear considerable resemblance to phrenitis. The animal will stop, look about him, stagger, and fall. He will immediately get up again, and proceed on his journey, but presently he will begin to stagger once more; and the sooner he is got home the better. The difference between rabies and phrenitis, in this stage of the disease, is that the

rabid horse preserves his consciousness throughout; which in phrenitis is lost from the beginning. Before a very brief but uncertain period has expired, the mad animal usually becomes violent to an extraordinary degree; stamping, kicking, biting, tearing, and demolishing every thing within his reach. Here, again, the difference between the two complaints is sufficiently manifest;—the rabid horse knows what he is about, and is trying to do mischief,—the phrenitic horse is struggling and plunging without design or intent to injure.

There is no remedy but the bullet, and the sooner that is applied the better.

Although hydrophobia, or the dread of water, is the characteristic of this disorder in the human being, it is singular that, in domesticated animals, and particularly in the dog, by whom the disease is oftenest communicated to man, it should have no existence. The horse, however, is sometimes an exception to this, for he does occasionally exhibit hydrophobia—either he is unwilling to drink, or the head is violently snatched from the pail in the midst of his drinking; the muscles of the face are strangely distorted; or he trembles from head to foot. He sometimes falls to the ground convulsed at the sound of dripping water.

When a horse is known to have been bitten by a mad dog, the wound should either be cut out, or the lunar caustic applied to it, so as to destroy every part of it. If this is carefully done, the probability of danger will be removed. The lunar caustic is the most effectual preventive: a skilful veterinary surgeon should, however, be employed. Medicine will be

completely useless; and all the pretended nostrums, which are celebrated in various parts of the country, are mere delusions. After the disease has once appeared in the horse, no man should be permitted to hazard his life in the attempt to administer medicine; and it should be remembered that the attendant on the rabid horse is always in danger, since the saliva that falls from its mouth, or is thrown furiously about, if received upon a wound, or the slightest abrasion, may produce as dreadful effects as those caused by the bite of a rabid dog.

CHAPTER VI.

INFLAMMATION OF THE EYE, OR COMMON AND SPECIFIC OPHTHALMIA.

SPECIFIC ophthalmia is one of the most annoying maladies that the practitioner has to deal with. A horse, and particularly a young horse, may be perfectly well on a certain day; but when he is examined upon the following morning, his eyelids are swollen: they almost cover the eye,—they are hot and tender;—the eye itself may or may not be cloudy; but the conjunctiva, covering the white that surrounds the coloured part of the eye, and forming the lining of the lid, is much reddened: there is a considerable flow of tears, while the horse hangs his head, and is in evident pain. It will be always prudent to examine, in the first place, whether these symptoms may not be the effect of accident; whether the horse may have

been bitten by his companions, or struck by his attendant; whether a bit of hay or husk of oat may not have got into the eyes, or other injury may not have happened. In the majority of cases, however, nothing of this kind will be detected. Sometimes the horse will have catarrh, and discharge from the nose; but oftener the eye alone will be the part affected, and this without any appreciable cause.

Young horses, about four or five years old, are most subject to it; they are approaching to or have reached their full growth, and they have the consequent tendency to inflammation. Black horses are said to be more subject to inflammation of the eyes than those of any other colour; but this assertion requires to be substantiated. Now and then ophthalmia will be very prevalent in some particular neighbourhood; or two or three horses in the same stable will be attacked at the same time;—it is epidemic—it is dependent on some peculiar atmospheric influence; but it does not seem to be in any case infectious.

Improper management may lay the foundation of this disease. If the horse is kept in a close stable, and his eyes daily exposed to the stimulating ammoniacal fumes which arise from the animal's urine, it is easy to suppose that the eyes will be weakened and predisposed to disease. This, however, *prepares* for, but does not *produce* ophthalmia, which sometimes occurs even in a colt at grass. There is, probably, no complaint that is more hereditary; and it has spread over whole districts from the incautious use of a blind stallion; or of one that had suffered from serious disease of the eyes.

The practitioner, or the owner of the animal, will carefully examine the circumstances under which the disease appears. If it is connected with cold or influenza, he will treat the horse as for those diseases; paying little attention to the eye beyond ordering it to be kept clean, and trying to soothe the pain by the use of anodyne washes. Generally, the inflammation of the eye will disappear with the disease with which it is associated. If any foreign agent, such as hay-seed, dirt, &c., be discovered in the eye, of course it must be removed, and after that a soothing wash may be employed. If there is considerable heat, swelling, weeping, impatience of light, and general cloudiness of the eye, it may be well to do something besides simply bathing the part with soothing lotions. While the inflammation is most active, warm water may be applied.

Where the inflammation is severe, the angular or eye vein may be opened, and a little food placed upon the ground, supposing the horse to eat, will assist the flow of blood; as the motion of the jaw and position of the head promote the bleeding. Or the practitioner should open the eyes, and turn the lids upwards and lightly scarify them with a keen lancet. The abstraction of even a few drops of blood from the immediate seat of inflammation will often be productive of the very best effects. The fomentations should, in the last case, be more diligently continued, in order to encourage the bleeding.

Some sedative application may afterwards be used to the eye. Either of the following lotions may be tried: but there is often a peculiarity or caprice

about this complaint; and that which will succeed at one time will have no effect at another. It would, therefore, be proper to apply the following receipts in the order in which they stand:

RECIPE (No. 6).

Strongest Wash for the Eyes.

TAKE—Aconite root, one drachm ;
Laudanum, half an ounce :

Steep the aconite root in one pint of boiling water ; when cold add the laudanum and use

RECIPE (No. 7).

Anodyne Wash for the Eyes.

TAKE—Laudanum, or tincture of digitalis (the latter to be preferred),
half an ounce ;
Distilled or soft water, eight ounces.

RECIPE (No. 8).

TAKE—Sulphate of zinc, one drachm :
Dissolve in half a pint of water.

These must not be wasted about the outside of the eye, but, with a camel's-hair brush, they must be gently placed upon the globe.

If these lotions should not remove or abate the complaint, that which the human practitioner finds so useful, but which is not always so beneficial in the horse, may be tried—viz. the vinous tincture of opium; two or three drops of which should be placed in its pure state upon the outer corner of the eye by means of a camel's-hair brush.

If, however, this inflammation of the eye should bid

defiance to these applications, the owner immediately pursues another method.

In the treatment of a lingering attack of specific ophthalmia it is of the utmost importance to consider the condition of the animal; for the disease being of a constitutional nature, general rather than local measures are to be adopted. Should the horse be poor and exhausted it must be supported, and nothing ought to be given calculated to increase the debility. The digestion must be regulated by mashes and clysters without any laxative. Soft and nourishing food, with pure air, and a loose box somewhat darkened, are required. To the eye a camel's-hair pencil dipped in hydrocyanic or prussic acid diluted with twice its bulk of water may be applied thrice a day; and a ball containing a drachm of powdered colchicum and half a scruple of calomel may be administered night and morning. Tonics even may, in extreme cases, be freely given, notwithstanding the presence of apparent inflammation: they are in these troublesome cases often the most powerful and only active opponents to the disease. Gentle measures, therefore, are required when the state of the animal appeals to our forbearance; but if the horse is in high working condition, irritable and strong, mild means are not to be depended upon. The degree to which severe remedies are called for, the judgment must decide; but, in an aggravated case, the following is the plan of treatment commonly pursued by most practitioners:—

“He administers a dose of physic; not because he often sees any immediate good effect from it, but

because it seems to be one of the means by which he has the fairest chance of success : and he bleeds if he imagines that there is much fever ; and, if the inflammation is very intense, he bleeds largely from the jugular, and to this he adds a local bloodletting. He gets as much blood as he can from the angular vein ; that vein which is to be found at the inner corner of the eye, and which comes from the orbit of the eye ; for, by bleeding there, he will be most likely to unload the congested vessels of the part. He continues diligently, and for weeks together, to apply local applications ; giving a fair trial to each, and changing them as each seems to lose its effect ; he inserts a seton under the jaws, to which he perhaps adds two setons in the cheeks. He regularly administers the medicines which he would use in cases of fever, with a view to lower the circulation." A good fever-ball for the horse, and one which is applicable to most cases, is the following :—

RECIPE (No. 9).

Fever Ball.

TAKE—Extract of belladonna, one drachm ;
Emetic tartar, half a drachm ;
Sulphur, one drachm ;
Linseed meal, two drachms :
Beat together with palm oil.

There is one thing which he should never do, although it is the continual practice of the farrier. The haw may partake of the general inflammation, and be enlarged. It is drawn over the eye in order to protect it from the light, and on account of its

enlargement, it may not be easily retracted. To the ignorant observer it would seem to be an injury, and a nuisance to the eye. When the general inflammation is abated, it will become of its natural size and return to its place of concealment. If the practitioner cuts it away, he may give a little relief by the bleeding which will follow; but he would give a great deal more if he had scarified the eyelid, or opened the angular vein; and he would not have deprived the horse of the means of defending his eye from the dust of the roads. He would not by scarification have prevented the animal wiping away the dirt when it gets into the eye; or have entailed upon the horse a degree of suffering of which the pain that a man feels under similar circumstances will give but a faint idea. The haw is no unnatural excrescence; it is a very useful part, enlarged by sympathizing with the general disease.

After a great deal of trouble, perhaps the eye gets better; but there remains a cloudiness about it, and of a very singular character. It is thick to-day, and may seem to be clearing up to-morrow: on the third day, however, it often becomes more opaque than ever, and at length is in a manner fixed.

The cautious practitioner will pay small attention to the local affection; his chief endeavour being directed to eradicating the disease from the system, which the cloudy eye testifies is not yet accomplished. He will again resort to constitutional measures. He will give doses of colchicum, or such tonics or alteratives as the case seems to require, only bathing the affected eye with some cold spring water, to every

pint of which an ounce of laudanum has been added. Under such a system the eye may become bright; success may seem to have been secured. But let not the exultation be too boisterous. Three or four months pass over, and too often the disease again appears, and attacks either the same eye, or perhaps the other. Specific ophthalmia often changes about from side to side in a manner which is most annoying. This attack is got rid of with greater difficulty; after that another follows: and the horse ultimately loses one eye or both. Hence comes the necessity of being aware of the traces, oftentimes difficult to be detected, which this complaint leaves behind it. The slightest cloudiness of the cornea will engender suspicion that the eye has not been at all times right; and this will be confirmed if the eyes, or rather the openings of the eyelids, are different in size; if one of the lids is thicker than the other, and particularly if towards the inner angle there is a little puckering of the lid. There may also be a dim line around the cornea; perhaps a very minute and scarcely detectable spot in the centre of it,—a haziness rather than a spot,—and faint lines radiating from it. Where such signs are detected, a suspicion of the previous existence of ophthalmia is warranted; and if the horse is young he should be rejected, for in all probability he may shortly suffer another attack of the disease. As specific ophthalmia, however, is not generally seen in matured animals, if the horse be more than seven years old, the above indications should be considered only as they have affected the sight and deteriorated the value of the animal.

It is important to distinguish between such appearances and those which are caused by a blow or external injury. In the latter case, after the inflammation has subsided, there is frequently left an opacity of the external cornea, which sometimes extends over half the eye. The internal parts of the eye, however, will appear perfectly clear and free from disease; also vision will only be interfered with by the opacity, which on examination is discovered to be confined to the conjunctiva. Sometimes, when the injury proceeds from the lash of a whip, one or two white and opaque streaks will be found upon the eye, the other parts being perfectly clear. In old cases of this description it is best to attempt nothing medicinally, for the injury is established; but when the case is recent, and all sign of inflammation has subsided, the white place may be lightly touched over with a stick of lunar caustic, or an ointment may be used composed of a grain of cantharides to an ounce of lard.

The natural course of specific ophthalmia is to involve the capsule covering the crystalline lens; either this or the lens itself may become wholly or partially opaque. Such opacity is termed *Cataract*. The effect of it is either imperfect vision or blindness—irremediable blindness; for if the operation for cataract, which benefits the human being, were successfully performed, and the lens removed, the horse, not being fitted to wear spectacles, could have no distinct vision; he would be deprived of that which refracted the rays of light, and regulated the picture which is impressed upon the retina.

A very considerable change has lately taken place

in the opinion of veterinary surgeons on the subject of cataract. It is supposed to be capable of forming in much less time than was once thought to be possible. It may appear, and become almost perfectly formed, in the space of from one to six days.

It is also ascertained that cataract may appear without any previous active inflammation, or without any apparent disease of the eyes. It is now fully proved, that partial cataract, that is, slight specks or spots on the lens or its capsule, do occasionally disappear. They are only thus transitory, however, when they are of spontaneous origin, or spring from causes which are not to be traced. When they are the consequences of injuries or disease, the cataract is stationary, and seldom disappears. If their appearance be spontaneous, mild constitutional measures and local stimulants to the eye are often successful. When they are the result of violence, the mild or the opposite course of treatment is the most beneficial.

When a cataract supervenes after inflammation of the eye, it is generally the case that the disease does not again recur: if the cataract should involve the entire lens of one eye, the other is generally preserved. So, also, if the remaining cataract is partial, or admits some degree of vision, the eye is likely afterwards to continue in this state. The last termination is, however, hardly desirable, as the horse with defective vision is more apt to make mistakes, and to become a dangerous possession, than is the animal afflicted with total blindness.

The chief inconvenience experienced from small cataracts, or partial injuries, springs from their ren-

dering the horse's vision imperfect, and causing the animal to shy. Many a valuable steed is parted with for this cause; and as such a habit materially depreciates the value of a horse, it therefore behoves horsemen to think twice before they strike an animal over the head, to indulge a temper which, in the end, may cost them rather dear.

With regard to specific ophthalmia, where the disease is not hereditary, another attack may be prevented; and even should it be inherited, some good will be accomplished by attending to the ventilation of the stables. The drains should be looked to, and the height of the roof considered; any dung or litter in the neighbourhood ought to be scrupulously removed. Foul atmosphere engenders ophthalmia; and there is nothing so preventive of the disorder as pure air.

GUTTA SERENA, OR GLASSY EYE.

There is a species of blindness, which, although it cannot in every case be traced to inflammatory action, ought to be noticed. The cornea is perfectly transparent, but the iris has lost its power of contracting; the pupil is permanently dilated, and the eye has a peculiar bright and glassy appearance. This fixed condition of the pupil is caused by loss of vitality in the optic nerve; and as it is by means of this nerve that animals are able to see, of course when its function is destroyed the horse is blind. This is frequently overlooked, and especially when confined to one eye. Gutta serena may be the consequence of pressure on the brain. If a horse has had several

attacks of staggers, and ultimately recovers, this species of blindness will often be left behind; no operation can remove this affliction, which is beyond the reach of medicine.

When, however, *gutta serena*, or amaurosis, is the consequence of any affection of a temporary character, it sometimes, but very rarely, disappears with the cause to which it owes its origin. With the restoration of strength the sight may be recovered; for weakness is a well-recognized cause of this affection. Exhaustion from fast driving may induce it; so also may excessive bleeding, lingering disease, or continued debility arising from any source. Blows upon the head may also occasion it, by inducing congestion of the brain, or effusion and pressure upon the optic nerve. Cart-horses are too frequently struck with the butt end of the whip upon the poll; and *gutta serena* is not rare among animals of this description. Such horses are predisposed to congestion, because of their loose and flabby structure. These horses are also very irregularly and badly fed; nothing more disposes to staggers than the too suddenly overgorging the stomach with food containing much water and small nutriment after long-continued fasting. The introduction of the nose-bag has greatly contributed to render this disease less frequent than it used to be; but a change of diet and of treatment is required to eradicate it.

CHAPTER VII.

INFLAMMATION OF THE TONGUE—BLAIN OR
APTHA.

THIS disease is neither so frequent nor so fatal with the horse as among cattle ; but it does sometimes occur, and when present in the equine species, is designated Aptha. The horse will refuse his food, hang his head, and a considerable quantity of ropy fluid will be discharged from the mouth. If his lips are closed, he resists the opening of the jaws to such a degree, that the suspicion may arise the animal has locked-jaw. When the mouth is opened, it requires some force to close it; and this also may cause the idea of locked-jaw to occur to the mind of the owner. The observation, however, that all the leading symptoms are absent, which will hereafter be described as characteristic of Tetanus, will forcibly point out the distinction between the diseases.

Upon examination, the tongue will be found considerably enlarged; running along its sides will be reddish or dark-purple bladders, which sometimes protrude between the teeth. Likewise, upon the lips are found smaller vesicles which contain a clear gelatinous fluid. The salivary glands are enlarged, and the discharge from the mouth is very great; while the soreness of the swollen parts causes the horse obstinately to resist every motion of the jaw.

The cause of this inflammation of the tongue is unknown. Sometimes it seems to proceed from indigestion. In such cases the breath and the fæces are

foetid. At other times it accompanies various inflammatory complaints. It may be seen in violent catarrh, and in epidemic fever or influenza. It is sometimes an accompaniment of locked-jaw.

The cure of it is very simple—the bladder must be cut through from end to end. There will not be any great flow of blood; the tumour seems to be chiefly filled with a red-coloured gelatinous fluid, which will ooze out, exposing a raw surface. After this, in the course of four-and-twenty hours, the horse will often be much relieved, if not completely well. A little prepared food will commonly correct the digestion; and if any remaining fever be perceptible, a few of the balls (Recipe No. 9, p. 46) may be useful.

If the disease is neglected, the bladders will burst, when foul ulcers will remain; these being exceedingly offensive, and difficult to heal. The stench may be removed by a solution of the chloride of zinc. This will at the same time usually give a healthy appearance to the ulcers.

RECIPE (No. 10).

Solution of Chloride of Zinc.

TAKE—One drachm of the chloride of zinc, and dissolve it in three pints of water. Keep the bottle closely stoppered when not in use.

Should the wound seem to require any thing else, the following possesses the property of bracing those parts to which it is applied. It may be used as a gargle, by raising the horse's head, and pouring a little into his mouth; then moving the head up and down, and ultimately letting go the hold, when the

fluid will flow upon the ground, though it will do no harm if it should be swallowed.

RECIPE (No. 11).

Infusion of Catechu.

On two ounces of powdered catechu pour two quarts of boiling water. Keep it in some covered vessel for an hour, occasionally shaking it: then pour off the clear liquor, and bottle for use.

Should both of these fail, the solution of common alum may be resorted to. It is a powerful astringent in these cases; but it sometimes renders the skin of the mouth so harsh, that the horse refuses his food.

RECIPE (No. 12).

Solution of Alum.

Dissolve two ounces of powdered alum in two quarts of water, and keep it for use.

CHAPTER VIII.

INFLAMMATION OF THE PALATE—LAMPAS.

THE old remedy for this imaginary disease, is either to fearfully burn or deeply scarify the horse's mouth. The symptom of lampas is the horse being off his feed. The presence of the disease is, to the groom's satisfaction, detected by the forward bars of the mouth being found upon a level with the upper nippers. In this situation they would always be found in young horses, did the groom more frequently examine the mouths of such animals.

Lampas, however, is in fact a purely imaginary disease. It is seen only during the period of the permanent teeth being cut; and that which is viewed as a malady, is nothing more than the table of one of the temporary molars being cast off. This is the regular process of shedding these teeth, the roots of which are absorbed; of course the horse refuses to feed as usual, while the organs of mastication are irregular and imperfect.

But how is it the application of the firing-iron to the roof of the mouth appears to cure? Why, of course, the horse with a piece burnt out of his palate cannot be expected to feed. The groom is content the animal should for a period reject his provender. Time is gained; when the mouth has healed, the molar has thrown off the shell of the temporary tooth, and the horse can eat as usual.

Such is the termination of lampas; the horse would have got well, and even have been better, had his mouth not been pierced by a lancet, or a heated iron. When a groom informs his master that an animal has the lampas, the best and wisest thing the proprietor can do is to throw up the services of the horse for a short time.

CHAPTER IX.

INFLAMMATION OF THE MEMBRANE OF THE NOSE—CORYZA.

THE essence, and nearly the substance of cold, at its commencement, is inflammation of the membrane

of the nose. It is characterized by redness of that membrane; increased discharge from the nose; weeping from the eyes; a little general heaviness, and a slight degree of fever. It is that which a warm mash, a comfortable stable, and some warm clothing, will frequently remove without any medical treatment; but which, if neglected, degenerates into catarrh, cough, sore throat, or inflammation of the lungs. There is, however, affecting the nose and involving also other parts, another disorder of a very singular nature—it is truly a specific one, and demands most serious attention.

CHAPTER X.

GLANDERS.

THIS is a sad and intractable disease. At its commencement it seems to be confined to the sinuses of the nose, the membrane of which is not characterized by the usual florid red of inflammation, but by a leaden or purple colour, sometimes by a very pale hue, and generally so at the commencement of the attack. Glanders commences with a very slight discharge; generally from one nostril only, and that frequently the left one. At first it can scarcely be distinguished from the natural moisture of the nose,—it is thin and transparent like it. In the beginning it seems to be merely this normal secretion a little increased in quantity. It may continue in this deceitful state for many weeks or months, and even two or

three years. There may be no cough; no loss of appetite; no apparent illness of any kind; scarcely any enlargement of the glands beneath the lower jaw; yet the horse shall be glandered, and capable of communicating the infection.

By degrees the disease proceeds. The discharge becomes decidedly, although to a very slight extent, increased; but it is still watery and transparent, and is to be distinguished from the natural secretion only by a slight degree of stickiness when it is rubbed between the fingers. It is also distinguished from the discharge of catarrh by its being constant; not at one time almost ceasing, and at another being poured forth in large quantities. The glands beneath the jaw sympathize with the membrane of the nose; they enlarge, and the horse is what the stableman calls *iugged*. The kernels may swell in catarrh; but the enlargement characteristic of glanders is distinguished by the glands not being tender; and still more particularly by the glands seeming to adhere to the inner side of the jaw-bone. They are hard, and the altered condition which they exhibit is unattended by any enlargement of the surrounding parts.

By degrees the discharge increases; it becomes more adhesive; it sticks about the nostril; it is still often confined to one nostril, and the hardened gland is found on that side alone. It is now, perhaps, recognized for the first time, by the owner of the horse or his servants; but the mischief has been done—it is highly probable that no medical care can now save the animal, and he may have propagated the disease among his companions.

Hence the necessity of attending to the very earliest symptom which possibly may indicate the presence of this complaint; of seriously regarding a slight increased discharge from the nose, or altered colour of its membrane—whether it be accompanied by enlarged submaxillary glands, or even should no tumour be detected.

The disease may be long stationary. Entire teams of these horses draw waggons, or are employed upon the roads: they outwardly seem to work well for months and years. This should not be permitted, for the contagion of glanders is often widely spread by such means.

In the next step the discharge is rapidly augmented; from being mucous or glairy, yet transparent, and always, without smell, it becomes purulent, opaque, yellow and foetid. If the nose is then examined, chancres may be seen upon the membrane of the cartilaginous septum between the nostrils. They are plainly not the excoriations which are sometimes observed in violent catarrh, but they are distinct ulcers, with ragged edges, surrounding surfaces which look sore, but want the red, even, vascular or purulent aspect of ordinary wounds.

Rarely after this does the horse retain his condition, appetite, and capability for work; but in all exceptional cases the period is uncertain, and generally short. The constitution is then affected. The virus empoisons the whole frame. The horse loses flesh, appetite, and spirit; the coat is pen-feathered; the skin is harsh, and clings to the bones. The inflammation extends down the windpipe, and the

lungs become implicated. A hollow cough bespeaks the mischief which is going on within the chest. The ulcers extend in the nose; they become larger and more numerous; the membrane thickens; the nostrils and the whole of the external openings swell; the air passages are impeded; the horse is threatened with suffocation; and a grating noise attends every act of inspiration. The discharge from the nose is increased; blood mingles with it; it assumes various colours; scabs, or pieces of cartilage, or even of bone are cast forth. Now it is that stench, which during the early stages was almost absent, is powerful and offensive. Symptoms of farcy appear. Ulcers break out in various parts, and the animal at length dies apparently from suffocation.

This is the usual progress of the disease when it is bred in the animal, or produced by bad stable management; but there is another species of the malady, termed, from the rapidity of its progress, the *acute glanders*. When the disease is communicated by inoculation, its march is sometimes fearfully quick. The disease is the same; but the peculiarity consists in the violence of the symptoms, and the rapidity with which they succeed to each other.

Sometimes, after the disease has proceeded slowly for many a month, the complaint all at once takes on the acute form, and speedily destroys the animal.

Glanders may thus be produced by various causes; such as contagion; exposure to a foul atmosphere; hard work; high feeding, and by any thing which shall stimulate, but undermine the constitution.

The treatment of glanders is very unsatisfactory.

There are cases on record in which horses appear to have been cured by every variety of treatment; and there are some instances of animals recovering when all medical treatment was neglected. It is very probable that in every reported cure of glanders, nature did a great deal more than medicine, or that the true nature of the affection was mistaken.

The method, however, which has oftenest succeeded, is that of strengthening the constitution against the continued influence of the disease, by the administration of stimulating food and tonics. The following ball has often been serviceable; and it has sometimes apparently cured the horse, but far oftener has stayed the disease only for a time.

RECIPE (No. 13).

Ball for Glanders.

TAKE—Sulphate of copper (blue vitriol) powdered, from half a drachm to a drachm: or sulphate of iron a drachm to two drachms;

Cantharides finely powdered, five grains;

Ginger and gentian, of each a drachm;

Palm oil, sufficient to make a ball.

One of these balls should be given morning and night for a fortnight; and then daily as long as may be necessary. Or the constitutional treatment, but more energetic than that recommended in the next chapter for farcy, may be adopted. Some of the relapses after the seemingly successful treatment of glanders are readily explained, by the disorder not being regular in its symptoms, but always of a most deceptive nature.

If any of our readers should feel inclined to expe-

riment with the cure of glanders, it must not be forgotten that the disease is notoriously contagious, and every horse suspected of being affected ought to be kept where he can have no possible communication with other animals.

Care should be taken that the hands of the person who administers the balls are perfectly sound, for the disease is unfortunately as dangerous to the human being as to the horse. The most prudent method would be never to ball a glandered horse without the balling-iron and gloves.

What, then, is the practitioner to do when consulted respecting a case of glanders? In such a case, having a regard for his own reputation, and a sincere concern for his employer's interest, the best advice he can give is, at once to destroy the horse. The first loss will certainly be the least.

If, however, the owner wishes medical treatment should be adopted, let the animal be removed to some place where he can be secure and alone. If in the stable the glandered horse originally inhabited there were other horses, let these be brought out one by one, and carefully examined. They ought not to be driven out all at once, lest confusion arise; any that exhibit a symptom which is suspicious should be put apart by themselves. Those which are hopelessly diseased should be sent in an opposite direction to be slaughtered; those that have confirmed glanders, but may be worthy the hazard of a cure, despatched another way; and those that are apparently not glandered put into a fresh stable; but all communication with each other be forbidden, lest the disease should

after a time be developed in one, and the remainder become inoculated. The stable must then be looked to before the horses are allowed to re-enter it; but on this subject ample directions will be given presently.

In the course of medical treatment, the practitioner should never be induced to practise cruelty. Operations of various kinds have been attempted, and the absurdity of most of them clearly demonstrated. No injection through a hole bored in the forehead can possibly be of service—for it can only be brought into contact with a very limited portion of the diseased surface. Irritating lotions can only add to the inflammation, and increase the sufferings of the animal, adding intensity to the disorder.

When considering glanders, however, it may be truly said prevention is better than cure; for after it has been apparently cured, the disorder has frequently returned; and the practitioner will be best able to prevent the disease when he thoroughly understands the nature and the cause of it. It is in its nature a constitutional affection, the earliest perceptible symptom of which is traced to the nose. The disease, however, is in the system; and not confined to the part where it first announced its existence. In very many particulars, glanders is closely allied to consumption in the human being; for the lungs of the glandered horse are generally found tuberculated, and the disease is the wind-up of an exhausted constitution. Neglect on the part of the horse-owner is by far the most frequent cause of glanders. Foul stables, and excessive work, with high food acting

upon a young constitution, will always in the end start up this pest. The post-master generally knew it too well—the barge-horse is commonly its victim. Among the cabs and omnibuses of London the disease is by no means a rarity. During a campaign, glanders is to the horse a fearful enemy. Among the cavalry kept for home service the disease is unknown. In the better class of stables it is sometimes seen, but only in rare and solitary instances, which can be traced, in the majority of cases, to contagion. Where the horse is hardly worked, poorly housed, and highly fed, glanders becomes, as it were, the possessor of the building. The three causes conjoin to produce the one effect. When these provocatives act together, so virulent is the disease, that sometimes a particular place seems to breed the disorder; every animal that enters it is sacrificed. Formerly, the evils not being appreciated, were amended one at a time. The food, perhaps, was improved—but no good resulted; then the work was decreased—still the horses failed; and lastly, the stables were attended to—yet it was found the disease was not checked. Hope, then, was abandoned, and superstition took its place. The spot was thought to be the birthplace of contagion, and every thing it contained was supposed to be infected. Destruction went to work. Horses were slaughtered; the buildings were pulled down, and all which they contained was burnt. This was sad folly. There is no occasion for such ruthless waste. If glanders appear constantly in a stable, let the proprietor set to work resolutely, and the disease may be conquered.

In the first place, the horses must be inspected.

The food must then be improved, the stable management amended, and the work diminished. After this has been done, or at the same time, the building must be surveyed. The drains must be cleared, and the ventilation must be especially considered. The harness, &c., must be well washed and thoroughly cleansed with the chloride of zinc lotion—one drachm to the quart. With regard to the stables, the whole of the interior should be first scraped and then saturated with water. After that every crevice should be stopped, and the place should be subjected to the action of chlorine gas. The easiest means of doing this is to place a saucer over a lamp. The saucer should contain sulphuric acid and common salt. The lamp being lighted and the saucer properly supported, the light ought to be placed beneath it, when chlorine will be given off in abundance. The fumigation ought to be thrice repeated on different days, and after that the pest will, supposing every thing to have been well done, be entirely destroyed.

CHAPTER XI.

INFLAMMATION AND ULCERATION OF THE SUPERFICIAL ABSORBENTS—FARCY.

IN the Cattle Doctor the absorbents were described as vessels which are distributed to every surface and every part of the body: they are carrying away the worn-out portions of the frame, or the fluids that fill

cavities—and are doing this for the purpose of converting them again into nutriment, or of expelling them from the frame. These vessels follow the course of the veins, and are, like them, furnished with valves; so that, located amidst the muscles, their contents never retrograde, but pursue a forward course to their proper destination. In proportion as the body is weakened, so is the deposit decreased, and the absorption increased. If, therefore, from confirmed weakness, the absorbents have more to do than they are capable of performing, some of them become clogged. The current which should be constantly flowing is stopped, and the fluid being stagnant degenerates. Inflammation commences, and there are formed little tumours, which suppurate, burst, and ulcerate.

The absorbents on the surface of the body are in Farcy most affected: where they are diseased there are to be seen small hard cords running along under the skin by the side of the veins; while at certain intervals, there are small tumours or knots (farcy-buds) which break, and small ulcers (farcy-ulcers) remain.

These buds have some resemblance to the patches on the skin which are known by the name of surfeit; but they may readily be distinguished from them by their hardness, by their running in lines, and also by the excessive tenderness of every Farcy-bud.

By degrees the deeper-seated absorbents are involved, while the debility naturally induces effusion, and there results painful swelling of the limbs. The disease often commences in, and is sometimes altoge-

ther confined to, one of the hind legs; at other times the head and the muzzle are first affected; there is then swelling of the lips, and a discharge of an offensive matter from the nostrils. The characters which it assumes are various, and often puzzling; but during the whole course of the disease, the horse is hide-bound, and is losing flesh or strength; he ultimately dies a mass of corruption.

Farcy is, like glanders, contagious. It usually runs its course more speedily than glanders, although sometimes, like that malady, it may lurk long in the frame before it produces its destructive effects. It is nearly always present during the latest stages of glanders; and it is essentially the same disease, but under a different form.

Although it is thus identified with glanders, it is somewhat more manageable than that complaint. There are very many cases of the apparent recovery of the farcied horse, and not a few in which the disease has been permanently eradicated; but it is only when it is confined to the corded absorbents, or superficial ulcers, that it admits of cure: when the body generally is involved, or the constitution is implicated, the case is as hopeless as that of confirmed glanders.

The treatment is both local and constitutional. The first consists in the dispersion or destruction of the farcy-buds, and the healing of the farcy-ulcer. The method of procedure in order to accomplish this is simple enough. The tumours must be opened and the pus which they contain evacuated. They should be freely divided with a knife, and then the budding-iron, at a black heat, applied to the internal surface.

When the disease is ascertained, the buds should always be opened and cauterized as soon as they appear. It would be useless to attempt to disperse them by any embrocation or discutient fluid. When they have been thus opened, some stimulating liniment may be applied; and the sores treated with an ointment composed of a drachm of the diniodide of mercury to an ounce of lard; or the ulcers may be washed with a solution of the chloride of zinc.

RECIPE (No. 14).

Lotion for Farcy.

TAKE—Half an ounce of chloride of zinc, and dissolve it in three quarts of spring water.

The ulcers should be freely bathed with this lotion morning and night.

The constitutional treatment will consist in the administration of tonics, in order to support the system.

RECIPE (No. 15).

Ball for Farcy.

TAKE—Corrosive sublimate, ten grains ;
Powdered gentian root, two drachms ;
Powdered ginger, one drachm ;
Oak bark in powder, half an ounce :
Make the whole into a ball with palm oil.

This ball should be given morning and night for a fortnight. If advantage then appears to have been derived from it, the quantity may be gradually increased to fifteen grains of the sublimate in each ball ; but the horse must be carefully watched, lest salivation or violent purging should be produced ; the instant either is

perceived, the mercurial balls must be discontinued. In salivation the mouth should be frequently washed with the solution of the Epsom salts, an ounce dissolved in a pint of water ; and a drachm of sulphuric acid should be mixed with every pail of water from which the horse drinks. When Farcy is present, purgatives are not proper, and must not be given.

If much purging and griping have been produced, let plenty of thick starch or arrow-root be horned down, and the following drink given morning and night:—

RECIPE (No. 16).

Drink for Purging from Corrosive Sublimate.

TAKE—Powdered opium, two drachms ; prepared chalk, two drachms ; liquor potassæ, one ounce : mix and gradually pour to them half a pint of thin cold gruel.

If two days should pass and the purging not be relieved, continue the starch and arrow-root, and give the following drink:—

RECIPE (No. 17).

Astringent Drink.

TAKE—Prepared chalk, an ounce ;
Powdered catechu, two drachms ;
Powdered opium, one drachm ;
Powdered ginger, one drachm ;
Powdered oak bark, half an ounce.

Rub them well together, and gradually add a pint of thin gruel. This mixture should be given morning, noon, and night until the purging begins to cease.

If, after a fair trial of the corrosive sublimate, no benefit seems to have been obtained, recourse should be had to the sulphate of copper (blue vitriol).

RECIPE (No. 18).

Another Ball for Farcy.

TAKE—Blue vitriol, one drachm ;
Powdered gentian, two drachms ;
Powdered ginger, two drachms ;
Powdered oak bark, three drachms ;
Palm oil, sufficient to make a ball.

This ball may be given morning and night, and continued with perfect safety as long as may be deemed necessary; but if, after the trial of a fortnight, no ground has been gained, the ball may be changed for the following:—

RECIPE (No. 19).

Another Ball for Farcy.

TAKE—Powdered sulphate of iron, two drachms ;
Powdered cantharides, ten grains ;
Extract of gentian, half an ounce ;
Powdered capsicums, half a drachm.

Dissolve in a quart of stout, or strong ale, and give night and morning.

In farcy, even more than in glanders, green meat is necessary; and if the horse can be turned on spring grass, or into a salt marsh, report asserts it will always be productive of temporary benefit at least. A run at grass, however, should always be accompanied by even more than a full allowance of oats and beans.

A medicine called diniodide of copper has been used with some success in farcy, and in discharge from the nostrils resembling glanders. The dose is from half a

drachm to a drachm and a half, combined with gentian and other vegetable tonics, and given once a day. The ointment of iodine has also been rubbed on the corded swellings with advantage: but of all these preparations one drachm of the iodide of lead mingled with one ounce of simple ointment may for external use be employed with the greatest advantage.

CHAPTER XII.

INFLAMMATION AND SUPPURATION OF THE CELLULAR SUBSTANCE UNDER THE JAW—STRANGLES.

STRANGLES is a disease from which few young and stabled horses escape.

At some time, usually between the third and fifth year, the colt will be out of condition and spirit, and have a slight husky cough; the appetite will fail; there will be occasional discharge from the nose, and weeping from the eyes; he may continue in this state for several days, or even during some weeks; not decidedly ill, but evidently far from well. The horse-man, when he sees a young animal thus affected, says that the colt is "breeding the strangles," and he is generally correct in his assertion.

The owner suspects the real nature of the disease on account of the age of the animal; the appearance of some purulent matter with the discharge from the nose, and sometimes a drivelling of thickened, ropy saliva from the mouth; the continuance of the fever after the nasal discharge has fairly set in; cough,

sore throat, and general lassitude, more marked and of longer duration than is common to ordinary catarrh.

The cough becomes at length more troublesome, and the nasal discharge and weeping increase, until a fulness appears under the lower jaw, and occupies the channel. It is hot and tender; the swelling increases until it assumes the form of a defined hard tumour in the centre of the channel, and along the course of the parotid glands. The breathing now becomes distressed; it is sometimes almost suffocating. The tumour increases; at length it comes to a head or points; if suffered to take its natural course, it bursts, and a considerable ulcer remains; but after the matter has fairly run out, the ulcer speedily heals and the colt is well. The disease is essentially marked by *the formation and suppuration of a large tumour beneath the jaw.*

If the proprietor of the horse does not intermeddle too much, it is rarely that much danger attends on strangles. Some weakness may remain; but that gradually disappears, and the colt enjoys far better health than he did before.

There should be no bleeding while strangles is coming on, or the tumour is forming; nor should any physic be administered—mashes and green meat being depended upon, if the animal be costive; for the quantity of corn ought not to be much diminished. Bleeding or physicking will only weaken the colt, and retard the progress of the tumour, or possibly prevent its coming to maturity.

As soon as the fulness under the jaw is marked, the progress of the tumour should be hastened by the

application of stimulants to the part. There is evidently a struggle going forward between nature and the disease, while the tumour is proceeding to suppuration; and the duration of this produces that exhaustion after recovery from strangles, which sometimes alarms, and is not always speedily removed. The object, therefore, should be to promote the process of suppuration, by which the disorder is terminated and the animal relieved.

Many persons employ fomentations to the part. The effect of these is doubtful. The hair cannot always be perfectly dried after the fomentation has been used; and the cold produced by evaporation from the damp surface will do more harm than the warmth of the fomentation had done good. A mild embrocation, which by stimulating the skin shall draw blood to the surface, and thereby hasten suppuration, is much to be preferred. After the following has been applied with all proper regard for the highly sensitive nature of the swelling, the throat should be warmly encased in flannel, as the cold would retard that process it is the intention of the embrocation to quicken.

RECIPE (No. 20).

Stimulating Embrocation.

Tincture of capsicums, two ounces;
Tincture of cantharides, two ounces;
Tincture of opium, two ounces;
Oil of camphor, two ounces;
Solution of soap, one quart:

Apply three daily until vesication is produced—then withhold the embrocation: but when the part is nearly restored to a healthy condition, the stimulation may be renewed if necessary.

After the stimulant has acted, and the tumour is

coming forward, it should not be suffered to take its natural course. No good could accrue did we let the pus increase, and by pressure cause absorption of the skin, leaving an ulcer which, when healed, might establish a permanent blemish; and such probably would be the result of the spontaneous bursting of the abscess. As soon, therefore, as a tolerable quantity of fluid can be detected, by its fluctuating under the pressure of the fingers, or the skin begins to be prominent and soft in some part of the swelling, the knife should be used. The incision should be of a fair size, proportioned to the magnitude of the enlargement; that all the pus may escape and the orifice be in no danger of closing before the matter is discharged. There should be no squeezing of the tumour, in order to force out the fluid; and the nasty practice of inserting the finger and raking it about should never be indulged. The abscess having been opened, Nature has been placed in a position to heal the parts, and all that is necessary, is to bathe the wound occasionally with the chloride of zinc lotion, to promote cleanliness and assist the restorative endeavour of Nature.

The horse will usually begin to mend as soon as the abscess is opened; yet the owner must not be in too great haste to open it. The matter should be suffered evidently, and in some quantity, to form. If the tumour be opened prior to this, the suppuration will be delayed, and in some cases, altogether prevented: the horse will then linger on, neither sick nor well, for a long time; he will never after thrive so thoroughly as when, by a copious discharge from

the abscess, he has got rid of that which was preying on the constitution.

The medical treatment of strangles will depend on the degree of fever that accompanies the formation of the tumour. It is a rule without exception, that a horse should *never* be bled in strangles. The acceleration of the pulse and heat of mouth, which usually accompany the disease, even if they are well marked, are best combated by gentle stimulants, such as a handful of beans or a little scalded malt. Mashcs should always be given to open the bowels, and green meat if it can be obtained.

If there should be very violent fever, purgatives are quite unnecessary during the active stage of the disease; and after the crisis has passed no physic must be administered under the idea of removing lurking humours. Good nursing and nourishing diet will, in the latter case, alone be requisite to counteract the debility which the disorder has left behind.

The weakness which sometimes accompanies the latter stages of strangles, or remains when the disease has passed, may, in most cases, be left to the slow but renovating power of nature. If, however, the weakness should continue or increase, or be accompanied by evident loss of flesh,—malt mashes, green meat or carrots, will be serviceable, with two or three feeds of corn daily: nevertheless it should not be forgotten that too much hard and stimulating food is often dangerous, therefore the judgment must be exercised to proportion the quantity to the necessity.

Should the weakness continue, a few tonic balls may be administered.

RECIPE (No. 21).

Tonic Balls.

TAKE—Sulphate of iron (green vitriol), two drachms ;
Extract of gentian, three drachms ;
Ginger, two drachms :
Make into a ball, and give daily.

Occasionally the internal membrane of the nostrils becomes violently inflamed, but no discharge accompanies the indication. In such case it is by no means a useless resort to fill a large nose-bag with scalded bran, and to hang it on the horse's head, as the inhalation of the steam favours the discharge of strangles. In fact, the treatment of strangles consists in assisting nature, and when the disease terminates fatally, that result is generally brought about by the officiousness of man throwing that, which the body was labouring to eject, back into the animal system.

CHAPTER XIII.

INFLAMMATION OF THE GLANDS AND THROAT.

IN every case of severe catarrh, and frequently even in milder cases, the glands of the mouth and throat are affected ; they will become hot, swollen, and tender. This may be evident externally, or will be shown by the horse *quidding his food* ; that is, dropping it from his mouth partly chewed ; it will be also indicated by the animal gulping the water when it drinks, and by the fluid returning through the nostrils,

because when the glands are enlarged, the act of swallowing is both painful and imperfect.

In common sore throat the part which, by its increased size, first attracts attention, is the *parotid gland*. In its healthy state it reaches from the root of the ear to near the angle of the lower jaw, and is not, to the generality of persons, very conspicuous; but when it is a little enlarged by inflammation, it can plainly be seen, and gives an awkward appearance to the juncture of the head and neck.

The horse, for inflammation of the glands, should be treated as described under the article CATARRH; bleeding is never required, but the animal should have sedative medicine according to the degree of suffering which accompanies the sore throat. The head and neck should be covered with a hood; and the following embrocation should be well rubbed in, reaching from ear to ear, extending over the greater part of the channel, and about three inches down the windpipe.

RECIPE (No. 22).

Embrocation for Sore Throat.

TAKE—Common liquid blister, one ounce;

Hartshorn, one ounce;

Olive oil, two ounces;

Oil of organum, one drachm:

Shake them well together.

RECIPE (No. 23).

Strong Liquid Blister.

TAKE—Dilute spirits of wine, one gallon. Pour that upon one pound of Spanish flies, coarsely powdered. Let the flies macerate a month, daily shaking them; then allow the liquid to remain stationary one day, and pour off the clear fluid; add half a pound of camphor and it is fit for use.

The last recipe will be the liquid blister in its strongest form, and such as will very rarely be required: when a blister is mentioned in the course of the work, the common liquid blister is alluded to, unless otherwise directed.

RECIPE (No. 24).

The Common Liquid Blister.

Spanish flies, in coarse powder, one part;

Olive oil, twelve parts:

Macerate one month, and filter for use.

The embrocation (Recipe 22) should be applied twice daily until considerable scurfiness appears.

In a few cases, however, the gland will continue to enlarge until suppuration takes place. This is a serious business, and requires the attendance of a skilful Veterinary Surgeon. The abscess, when forming, must be promoted as much as possible by the use of the embrocation, aided by warmth. Only when it fairly points, ought the knife to be introduced; and even then care should be taken not to puncture the body of the gland.

Sometimes the duct of the parotid gland is opened by the knife of the inapt surgeon, and it is frequently not easy to close such a wound. The saliva escapes and jets forth when the horse is feeding. The animal becomes unsightly; and the loss of that fluid, which mingled with the food, and was designed to aid digestion, is injurious to the health. A blister round the orifice should be first tried; liquids such as gruel constituting the food, in order that the jaws may not be moved, and by their motion prevent the parts

uniting. The blister having failed, a false opening has been made into the mouth, or the gland itself has been intentionally destroyed. We make no mention of the budding-iron, because it is a destructive instrument, and it never ought to be seen in humane or scientific hands. Far less ought so dangerous an application to be used by the professional man upon the property of other people. His duty is to do no harm if he can do no good; and happily a mode of cure for fistulous parotid gland has been discovered, which promises to fulfil every intention of the very best surgery. A very little liquid blister is used to aid the knife in removing all the schirrus round the opening. This being accomplished, a pledget of lint is put upon the orifice; and this is forcibly retained in its situation by means of short pieces of darning cotton passed over it. The ends of the cotton are made firm by the application of collodium; which is nothing more than gun-cotton dissolved in ether. The heat of the body causes the ether to evaporate, leaving behind the gun-cotton, which forms an admirable glue. This excellent mode of curing fistulous parotid was the discovery of Mr. T. W. Gowing, of Camden Town, to whose genius Veterinary Science is so much beholden. Of course when the last method is pursued, the horse's head is tied up, to prevent him rubbing the part against the manger: and the animal is barely supported upon liquids, to render unnecessary the movement of the jaw.

The other glands which supply the mouth with saliva will also generally share in the inflammation of the parotid. The *submaxillary* glands from close

approximation will be oftenest affected. It is very rarely indeed that the horse has cold without the lymphatic glands in the channel being implicated. If these last are neither very large nor very tender, it will be best to let them alone. The swelling will subside when the cold or fever is removed. Should they, however, attain a considerable size, and remain under the name of

VIVES,

the embrocation (Recipe, No. 22, p. 77) may be as well rubbed in.

These indurated glands will generally be dispersed by the application of an embrocation like that recommended; if, however, it should fail, a little of the following ointment should be rubbed in daily.

RECIPE (No. 25).

Iodide of potassium, one drachm ;
Lard, one ounce.

In obstinate cases, the application may be assisted by the administration of a drachm of the iodide of potassium given every day in a ball.

BARBS OR PAPS.

The submaxillary glands, by two small teat-like bodies, open into the mouth, on either side of the bridle of the tongue. When there is much inflammation of the glands, the terminations to the ducts enlarge; and their increased size may cause them to be slightly excoriated, and to appear like diminutive swellings.

The proper way to treat those swellings is to combat the inflammation which produced them, giving some sedative medicine, and paying extra attention to the food: as soon as the inflammation begins to abate, the barbs or paps will diminish, and all will be well. No ointment or lotion should be applied to them; for the cause ceasing, the effect will presently disappear. The farrier who proposes to cut or to burn them off shows the most disgraceful ignorance. He will not only put a noble animal to much unnecessary torture, but the new inflammation which he will produce in the part may close up the orifices of the ducts. The secretion of the saliva, nevertheless, would go on: and if it cannot be discharged into the mouth, it must accumulate somewhere; and in consequence of the accumulation causing pressure, the duct will ulcerate: and under the jaw will be formed a fistulous wound which the best practitioner may be unable to heal.

GIGS, BLADDERS, FLAPS.

These are names for enlargements of the openings of numerous little glands under the tongue and within the cheek, whose function is to pour forth a secretion which mingles with the saliva. They too, sometimes, being affected by adjacent inflammation, become enlarged, and look like little pimples scattered about the mouth. In most cases nothing should be done to them; or if any thing, the Infusion of Catechu (Recipe, No. 11, p. 55), or the Alum Wash (Recipe, No. 12, p. 55), may diminish the swelling, and heal any ulcers which may exist.

SORE THROAT.

This affection frequently is present as a symptom of other diseases; but sometimes it exists by itself, or seems to be an independent disorder. Beside being off his feed, the horse coughs; gulps the water as he drinks, a portion of the fluid returning by the nostrils:—in the stable the animal is continually swallowing his saliva, each act of deglutition being well marked or accompanied with a sense of effort. The space which lies between the mouth and gullet, as well as also between the nostrils and the windpipe—the intermediate part where the respiratory and digestive tracts meet and cross one another, is inflamed—tender—perhaps ulcerated and painful. All the air entering the lungs, and all the food taken into the stomach, must pass through this affected part, which is technically called the fauces. It can have no rest, and would seem to be, therefore, almost incapable of cure. Fortunately, however, sore throat, though here for the purpose of arrangement treated of as a distinct disorder, is not often met with in an isolated shape. When it does appear in such a form, it depends generally on digestive derangement. A mild physic-ball and soft food with a warm box will generally settle the business. If it is obstinate a blister may be applied, or even a seton inserted under the throat; and after the bowels have been opened, a few fever or sedative balls may be given. When all irritation is subdued, a tonic ball night and morning to strengthen the stomach will be of service.

In all cases of sore throat the nose-bag will be found

exceedingly useful. In common cases, scalded bran may be sufficient. It should be almost or quite at the boiling temperature, the bag, however, being sufficiently deep to secure the muzzle of the horse from being scalded. In bad cases, and attended with much difficulty of breathing, fresh yellow deal sawdust may be used instead of bran.

LARYNGITIS.

At the top of the windpipe there is a cartilaginous box called the Larynx. This part is lined by mucous membrane, which is characterized by its extreme sensibility. The smallest particle of dust getting upon this irritable membrane will cause the most violent coughing; and inflammation is attended with not only excessive pain, but very acute symptoms. The breathing is affected: the glands are generally enlarged—the cough is frequent and painful—the horse resists if any attempt be made to touch the throat. The pulse is sharp and quick—the membranes are more red than in health, and an audible sound may accompany every inspiration.

No time should be lost in combating this disease, which, if neglected, may either involve the lungs, or may become settled, and produce roaring or chronic cough. In such cases all coarse or violent measures are to be avoided; as during Laryngitis considerable debility is invariably present within the animal's system. A mild physic-ball should be given, and fever medicine combined with sedatives administered. The following will answer very well:—

RECIPE (No. 26).

TAKE—Extract of belladonna, one drachm ;
 Aloes, one drachm ;
 Calomel, a scruple ;
 Tartar-emetic, half a drachm :

Make into a ball with linseed meal and honey, and give night and morning.

The throat should be blistered, and the counter-irritation may be carried down the front of the neck. If the case is more than usually severe, a seton ought to be inserted under the jaws. Under any circumstances the nose-bag with deal shavings should be employed as directed for sore throat, and the general mode of treatment pointed out in the previous affection should in this disease be followed.

 CHAPTER XIV.

BRONCHITIS—INFLAMMATION OF THE BRONCHIAL TUBES.

THIS disease consists of inflammation of the membrane lining the air-passages of the lungs; and is generally accompanied by a similar state of the wind-pipe and the larynx. It is produced by the same causes as a common cold; and not unfrequently is the extension of inflammation from the throat downwards. It is a very insidious disease; though sometimes it may be slight, and free from danger. It frequently creeps on so gradually that it fails to attract the attention until

too late. It is not uncommon for a cough and a slight diminution of the appetite to be the only symptoms noticed for several days; although, if the animal were carefully examined at this stage, he would be found to have a quickening and a disturbed pulse with slightly laborious breathing. A discharge from the nostrils is also an early symptom. The disease, after creeping on in this manner for several days, sometimes exhibits on a sudden the most dangerous symptoms; the pulse being exceedingly quick and weak; the respiration greatly accelerated; the membrane of the nostrils and eyelids of a red colour, and the discharge suspended. When bronchitis presents itself in this form, it is very commonly fatal—the membrane of the nostrils becomes of a purple hue, and death too frequently closes the scene in the course of a week or ten days.

The disease fortunately does not always exhibit itself in this severe form. We often find the first symptoms are a loss of appetite, dulness, discharge from the nostrils, and cough; it can only be distinguished from a common catarrh by the quickness of the pulse and the disturbance of the breathing. From common inflammation of the lungs it may be distinguished by that warmth of the surface and of the extremities which usually prevails, and by the more moderate acceleration of the pulse and respiration. It should, however, be observed, that it is by no means uncommon for this disease to be complicated with inflammation of the lungs; and when such is the case it is the more dangerous. It is sometimes attended with costiveness; the dung being often offensive, and coated with mucus; and yet the membrane lining the

bowels is so irritable as to be violently acted on if physic is administered. On applying the ear to the chest, instead of the healthy murmur, we generally hear a wheezing or sucking sound, sometimes one resembling brickbats being rolled down from a considerable height is audible, owing to the air struggling with the mucus; but this, of course, will depend very much on the quantity of this secretion which is effused. The breath is warm, and the mouth usually hot and perfectly dry.

There may be a seeming necessity for bleeding; yet, violent as the symptoms may appear to be, the patient will not often bear the loss of blood. There is no rule which admits of so few exceptions as this, that a disease of the mucous surfaces (and this is one) requires prompt and decisive treatment; but at the same time very cautious remedies, from the rapid debility which is connected with all these affections.

It is better bleeding should be abstained from. Such a bloodletting as we dare hazard in bronchitis is not likely materially to affect the disease; while the smallest abstraction of the vital fluid is sure to tell with dangerous (perhaps fatal) certainty during the subsequent debility.

Although it will be desirable to relax the bowels, aloes will be dangerous, except in the quantity of one or two drachms, and not repeated; but it will be better to substitute a pint, or nearly so, of linseed oil guarded by a drachm of chloroform, and to assist its action by glysters if there is costiveness present.

Sedative medicine, such as the fever-ball, should

be given twice a day; and after the severity of the inflammation is in some measure diminished, setons or rowels may be inserted in the brisket.

The liquid blister rubbed upon the throat down the course of the windpipe and upon the chest will, after the first symptoms have abated, often be attended with the best effects.

Gruel and green meat should constitute the only food of the horse; and even these should be offered in limited quantities.

The disease of the lungs, however, will not always thus decidedly attack the bronchial tubes alone; it will more often have a diffused character, and be connected with the inflammation of other parts.

CHAPTER XV.

EPIDEMIC CATARRH—MUCOUS FEVER—DISTEMPER— INFLUENZA.

THIS disease is not at all times distinguished by any common and characteristic symptom; but strangely differs in different years and seasons of the year; it has a great variety of names, and has been subject to a greater variety of treatments.

The attack is usually sudden, and may appear during the night. It at first simulates the commencement of catarrh:—the horse shivers; the pulse is generally weak and not always quickened; the mouth is hot; the coat stares; the belly is tucked up; the membrane of the nose is red; the eyes are red and weeping; the

appetite fails; the flanks heave; and there is more or less cough.

This may be mistaken for cold; perhaps at the beginning it is nothing more. It cannot be inflammation of the lungs, for there are no deathly-cold ears or feet: in general the extremities are hotter than usual. One general symptom, however, forbids its being confounded with pneumonia. Early in the attack swellings appear. The eyes are watery and the lids, half closed, are enlarged. The legs and joints are often increased in size, and motion is evidently painful. The head sometimes becomes of enormous bulk, and below the belly a number of dropsical tumours may be seen.

The second day seldom passes over without a degree of weakness which does not accompany any affection of the chest. There may be a disinclination to move in inflammation of the lungs; but it is downright incapacity for motion in influenza. We are then aware this peculiar disease is present—epidemic catarrh, or distemper, or mucous fever, or influenza, for it is called by each and by all of these names, although the last term is now generally adopted. Epidemic it is: whether it be contagious is a question that has not been fairly settled; but when it once gets into a stable, no horse is secure from an attack, nor any one certain of a visitation; but it frequently runs from stable to stable throughout the neighbourhood.

When it is established, another train of symptoms succeeds, plainly characterizing the peculiar nature of the disease. There is sore throat to a far greater

degree than in catarrh; while sometimes in inflammation of the lungs there is no sore throat at all. The horse gives up eating, and, day after day, he obstinately refuses to feed. The nose is first inflamed, but dry. There is no discharge, but actually a want of moisture in the early stage. If he case, however, is to do well, the discharge will shortly appear, and in much greater quantity than in catarrh. The appearance of the deflexion is desired; for with it the severity of the symptoms generally abate. If by injudicious treatment the discharge should be checked, the weakness becomes excessive. The nasal membrane loses its red hue, and assumes a dull-purple colour. A thin, discoloured, and stinking fluid drains from the nostrils, for the thick full stream that announces recovery is no longer beheld. The breathing, which at first was not violently affected, although the horse was tucked up, becomes laborious, and the animal dies from inflammation of the bowels or lungs, or more commonly from dropsy of the chest.

The measures adopted in the treatment of influenza must be cautious. Blood must not be taken.

Purgation is often present when influenza sets in, and even if the bowels are costive, physic is not safe. If the proprietor will give it, let him be cautious how he administers even one drachm and a half of aloes in any form. Half a pint of linseed oil, in which a drachm of camphor and the like amount of chloroform have been dissolved, is much better than aloes; but no laxative is demanded. If the fever be great, the following drink may, with advantage, be given night and morning, or in very severe cases even thrice a day:—

RECIPE (No. 27).

TAKE—Sulphuric ether, one ounce ;
Tincture of opium, one ounce ;
Water, one pint.

Soft food, gruel, and a cool, loose box will be required. The legs should be well hand-rubbed to restore the circulation ; and the swellings may be embrocated, in the hope of promoting absorption, although there is no absolute necessity to attend to these—they usually disappear with the disease. If there is soreness of the throat, as there generally is, the part may be stimulated with a little embrocation, yet even here it is better to yield to the obvious desire of nature, and to permit sickness to escape from the annoyance it desires to avoid. Nothing whatever must be done to the eyes, however bad they may appear to be. There is one plan which will generally succeed, and which should be regarded as an indispensable portion of the treatment of distemper, not to give one drop of water, but to hang up in a box a pail containing very thin gruel, from which the horse may quench his thirst as often as he pleases. Some degree of nutriment will be thus got into him, which could have been effected by no other means.

When the inflammatory appearances are abated, and much weakness remains, we may have recourse to mild tonics, such as the following :—

RECIPE (No. 28).

Mild Tonic Ball for Influenza.

TAKE—Gentian, half an ounce ;
Powdered ginger, two drachms ;
Cascarilla bark, half an ounce :

To be made into a drink with a quart of ale or stout.

This drink may be given morning and night. The proper treatment in the after stages of this disease, when the bad symptoms are slowly abating, is to support the system ; and to leave nature, as much as may be, to herself.

If, however, from the employment of too active measures the horse continues to lose flesh, and strength, and spirits—if the first tonic has produced no febrile reaction, a stronger one may be tried, and Recipe, No. 21, p. 76, may be given as a drink, the ball being dissolved in a quart of ale or stout.

Should the membrane of the nose become of a leaden colour ; or the flanks begin to heave ; the extremities to feel cold ; the countenance to appear haggard, and the pulse to quicken—powerful stimulants will be required. These ought to be administered of a strength wholly disproportioned to that of the animal. No rule can here be laid down, but the judgment must decide upon those measures which the case demands. Typhoid symptoms are best prevented by abstaining from the use of debilitating medicines in a disease which is certainly accompanied by weakness. To promote a copious discharge from the nostrils should be the primary object of our treatment ; and to forward this end the employment of the nose-bag, as before directed, will be found to be of importance during the primary stages of influenza.

This disease has been very fatal to many horses ; but it is doubtful whether it was not made so by the means adopted for its cure. Now, fortunately, it is of a milder character, and if the proprietor can have

sense enough to aid nature in her efforts towards recovery, it does not generally terminate in death.

CHAPTER XVI.

PNEUMONIA, OR INFLAMMATION OF THE LUNGS—
THICK WIND, BROKEN WIND, CHRONIC COUGH,
AND ROARING.

PNEUMONIA, or general inflammation pervading the lungs, is not a malady so frequent as some have imagined; for it has been too much the fashion to consider every disease of the chest as inflammation of the lungs.

We have hinted that it is an occasional consequence of the other chest diseases which have been described. Common catarrh, and, much oftener, influenza and bronchitis, may, if neglected, terminate in inflammation of the lungs. The disease will proceed along the air-passages, until the very substance of the lungs becomes affected. It may also be caused by exposure to cold; neglect after being heated by exercise; change from a cold to a hot stable; over-exertion: in short, any thing that may lead to common cold is capable of producing inflammation of the lungs.

It is of great importance to be able to distinguish the symptoms of pure pneumonia, in order that the proper treatment may be adopted; for, on account of the faulty management of the stabled horse, and the injury which the lungs receive from occasional cruel exactions, there is much predisposition to acute inflammatory action in those parts. Many horses die

of inflammation of the lungs within twenty-four hours from the commencement of the attack. In extreme cases they have perished in twelve, and even in six hours; therefore not a moment should be lost. When a fatal result takes place so rapidly as this, the lungs are found completely black, being engorged or suffocated, as it were, with dark venous blood. This variety of disease has recently been termed pulmonary apoplexy; and is generally brought on by over-exertion. It is characterized by a more rapid and distressed breathing than exists, in other affections; also by a more oppressed pulse.

The first symptom of pneumonia usually is a shivering fit. This is a circumstance which should never be overlooked by the attendant. The moment a horse is seen to shiver, he should be most carefully examined; and if there are other suspicious circumstances about him, and the pulse is feeble or suppressed, he should without delay have a drink composed of sulphuric ether and laudanum, of each one ounce, cold water one pint. Some endeavour to cut the shivering fit short by brisk exercise. The horse is taken out, briskly trotted or galloped; then well groomed, and a hot mash put before him. This sometimes succeeds, and inflammation is prevented by rousing the system to throw off the evil; but on the other hand, there are thousands of cases in which the disturbance of the system has been increased, and a fatal result has been induced by the ill-judged exertion during a state of transition.

The nature of the shivering fit should be carefully observed. If one or more of the legs are icy cold,

there is a decided attack of inflammation of the lungs. There are few symptoms so invariable as this. In common catarrh, in influenza, or in bronchitis, the legs may occasionally be cool; yet often their temperature will be above the natural standard, or it may be variable; but a fixed icy coldness marks an attack of pneumonia.

The pulse should be anxiously examined. In inflammation of the lungs the pulse will seldom be hard; it will occasionally be scarcely detectable, but it nearly always has an obscure oppressed feeling; which will give the idea of fluid labouring onwards with difficulty. The careful observer in it will have a palpable demonstration, that the blood is congested within the substance of the lungs; that the heart likewise lacks the power to urge forward its contents.

The flanks will heave quickly and laboriously: there will evidently be much painful effort on the part of Nature to force the blood through the lungs; the idea of suffocation will be presented to the attendant. Suffering is sometimes indicated by the anxious gaze at the side; a symptom which is not usually observable in the chest affections that have subsequently to be considered.

In addition to all this, there is a stiff manner of standing—an evident attempt to make the limbs the fixed points; that the muscles which are common to the thorax and the extremities may be employed in aiding to expand the chest. For the same reason, a horse affected with pneumonia can scarcely be induced to move: and he will not lie down, but obstinately stand until he drops from fatigue, or falls to

die. Other symptoms are the expanded nostril; the head drooping; the mouth hot; the membrane of the nose red; the appetite nearly, if not entirely, lost.

The treatment of inflammation of the lungs is simple enough.

Purging must not be attempted here, for there is too close a sympathy between the lungs and the intestines; and the affection of the one might very possibly be extended to the other: but if, as is usually the case, costiveness is present, half a pound of Epsom salts may be dissolved in each pailful of water, and kept constantly before the animal. The salts are a febrifuge in their action, and in the horse will rarely indeed effect more than relax the intestines. When this effect is produced, or when one pound has been imbibed, the salts should be withdrawn; for pushed further than this they are apt to gripe; and every affection of the bowels is of the utmost importance during pneumonia. Some fever medicine will also be beneficial, and the following draught may be given twice a day:—

RECIPE (No. 29).

TAKE—Liquor ammonia acetatis, four ounces;
Tartar-emetic, half a drachm;
Extract of belladonna, half a drachm;
Digitalis, half a drachm:

Rub down the belladonna; dissolve the tartar-emetic in a sufficiency of water; and mix the other ingredients.

This should be continued until the symptoms subside, or until the pulse begins to intermit; when it ought either to be withheld, or administered in de-

creased quantities, according to the symptoms of the case.

During the continuance of pneumonia should the horse appear to be griped—should the symptoms seem not to be sufficiently energetic—should blowing announce that faintness is on the eve of mastering the animal economy—at once, and without hesitation, resort to sulphuric ether, and tincture of opium, an ounce of each in half a pint of water. This medicine may be repeated whenever the symptoms appear to require it. It is equally potent and harmless. It acts with magical speed, and does so without apparently leaving behind any of those after-effects which render us unable to resort to too many of the best forms of medicine.

When the active symptoms are reduced, counter-irritation should be adopted. Before this, the application of a blister would have added to the constitutional irritability; probably it would have done little else; for during the existence of violent internal inflammation, it is seldom that the benefits of a counter-irritant can be obtained. The liquid blister is to be preferred; and it should be well rubbed along the windpipe and between the fore legs, and even continued, in severe cases, along the belly. Some persons apply the blister to the sides; but as the horse lies upon its side, this is objectionable: because through the soreness which it induces the horse may be prevented lying down; also because it makes the motion of the ribs painful; and in pneumonia the respiration, however laboured it may be, is always, to a considerable degree, suppressed, and because the

practitioner dates recovery as certain, after he has beheld the animal which is suffering pneumonia reposing upon the ground.

A seton in the chest is generally inserted: but it does no good, and by annoying the horse must do some harm. It is of service only by informing the practitioner of the chance of recovery; for if the seton produces no suppuration the case looks badly; but if it causes a plentiful secretion, the discharge denotes that the body is recovering its functions, and a cure generally ensues. Moreover pus is secreted at much expense to the system. To institute a drain is certainly an odd practice, when it is desired that the animal should speedily regain strength and recover from the late attack of a debilitating disorder.

When blistering the horse for pneumonia there are two ways of proceeding:—either with the blistering ointment, or according to the most humane and the better plan with the simple liquid blister, thoroughly rubbed upon the parts; no previous preparation being necessary excepting the removal of the hair, though even the last measure is not absolutely imperative. The ointment will require the less friction, as many small pieces of cantharides are retained within the fat; and these particles can act upon the skin after the lard has been dissolved. Such small pieces of cantharides, however, often cause fearful sores, and continue the action long after the proprietor wishes all the irritation should cease. A liquid blister, however, requires to be rubbed in for some time; the period differing with the state of the weather. Ten minutes of brisk friction will be suffi-

cient in the summer; but during the winter it should be rubbed into the part for at least a quarter of an hour. The liquid form of blister therefore may give the groom a little trouble, but it is more beneficial in its operation, more gentle in its action, and altogether more manageable in its effects. In all good practice it has entirely superseded the old and filthy form of blistering ointment.

Let the reader, however, not forget the hints which have been thrown out concerning the proper period for resorting to counter-irritation. The inflammation should have diminished before the blister is applied. During the intensity of the disease a blister will not rise at all; or it may increase the general irritability and thus augment danger; but when the primary inflammation has to a certain degree abated, the blister is an excellent adjuvant. It is always an unfavourable symptom when the blister does not rise. Either the original inflammation is too intense, and absorbs too much of the vital power to permit any other part to be excited; or the favourable moment has passed, and the system is utterly exhausted.

The horse should be turned into a cool, but not cold box. A cool and airy situation will be likely to lessen the inflammation and fever; but air too cold will drive the blood from the skin and the extremities, and determine it still more injuriously to the inflamed part. For this reason, while the air is cool, the clothing of the animal should be rather warm, the legs should be bandaged, and the perspiration, sensible and insensible, should be promoted, as causing a salutary

determination of blood to the surface, and relieving the diseased organ.

The same consideration will show the propriety of hand-rubbing the extremities, and covering them well with flannel rollers. This may be greatly assisted by rubbing in a liniment composed of equal parts of the oil of cantharides, and of hartshorn, diluted with four parts of olive oil. The intense coldness of the legs shows that little of the vital current reaches them: but when a comfortable warmth has been restored, and the proper amount of blood has been solicited back to the feet, proportionally less will flow to the inflamed and overloaded parts.

As for food, the horse will rarely touch any: and if he were disposed so to do, he should not be allowed more than an exceedingly small portion of green meat. To water he may have free access; a pailful should always be slung in his box, it having been previously boiled, and when at its greatest heat poured upon a large handful of flour, the whole being stirred well and long afterwards.

No secondary drain upon the system is required, or is in any case allowable. Weakness is sure to ensue, upon violent inflammation; while effusion into or dropsy of the chest is a termination to pneumonia much to be expected, and of course is proportionably to be guarded against. This can only be done by husbanding the strength to that degree which the disorder will permit. The old practice of draining the life out of a horse, under the notion of conquering some remnant of inflammation, is now wisely discarded; and it is known that what was formerly mis-

taken for a lingering fever, is nothing more than the natural effects of the weakness consequent upon the attack and the treatment the sufferer has undergone.

Supposing that the case has gone on well, and the patient is slowly returning to health, the care of the practitioner should be wholly devoted to assisting the restorative efforts of nature. The owner may be impatient, and the practitioner may not be sorry to get the case off his hands; but there is an old caution, seldom more applicable than here, "not to make more haste than good speed." After pneumonia, as well as influenza, when health is returning, nature will work more securely, and should be assisted only with considerate hesitation. Above all things, there must be no imprudent haste in putting once more to work the horse that has recovered. Rest for some time, with an airy lodging, sufficient exercise, and nourishing food are now imperative. The food should not be too stimulating. A couple of feeds of bruised and scald oats is the most that can with safety be allowed during a state of recovery. Beans, gruel, and other temptations are not to be permitted after the medical attendant has retired. Nature is then labouring to repair the damage she has lately suffered; and good wholesome food, sweet water, pure air, and sufficient exercise, are the materials she works with.

That which has been said about pneumonia supposes the disease to be of an idiopathic kind. No remark has been made upon that form of this affection which is termed congestion of the lungs, or pulmonary apoplexy. This last form of disease is caused by over-exertion; and is, therefore, most common in

the hunting-field. The horse drops; he lies exhausted; the pulse is weak; the breathing is in the highest degree laborious. If a vein were now opened, a quart or two of blood might be obtained; and this probably would prevent much of the evil which otherwise must ensue. Should a short time be allowed to pass over, and the attempt be then made to bleed, no blood will flow. It will trickle slowly down the neck, instead of jetting out into the vessel held to catch it. It will be black and thick, and look somewhat like treacle. When this is the case, it is of no use to persevere; but the orifice ought to be at once closed. A stimulant should be administered, in the hope of restoring the congested circulation. Three ounces of sulphuric ether, one ounce of laudanum, four of liquor ammonia acetatis, and one pint of water, may be given every hour, or oftener. When the medicine begins to act, the pulse may be distinct at the jaw, and then blood could be obtained; but it is not then desirable it should be abstracted. The result it was wished to expedite, or the restoration of the circulation has been accomplished, and sickness can afford to part with none of its diminished strength. The stimulants may be repeated as the symptoms require the administration of them, and the horse generally recovers quickly. If improper measures, however, are pursued, the case soon terminates. The respiration becomes more quick; a thin bloody discharge issues from the nostrils; the breath grows offensive; and the animal dies. After death, the lungs are found black, sometimes in places mortified, or going on

towards putrefaction; they are, in fact, what the farrier calls rotten.

It is not invariably, however, that under the best treatment, even when the horse does not die, he is perfectly restored. The life may be saved; but the disease may have produced changes such as no human power could counteract. The horse may apparently be restored to health; but he will never be a sound horse. He may have

THICK WIND.

There is usually a great deal of congestion of the lungs in pneumonia. Many of the air-cells may then be clogged, or the adjacent vessels then be loaded; and when these last have long been distended, the blood becomes in a manner organized. The cells through the obliteration of their vessels soon cease to exist. The function of respiration, however, must be carried on; and if one portion of the lungs is thus taken away, that which remains pervious must work the quicker; the act of breathing will be more laboriously performed; it must be more rapidly repeated, and the horse will have THICK WIND.

Thick wind is sometimes the consequence of bronchitis, or influenza. Then it arises from the air-passages having been thickened by the inflammation, and the lining membrane of the air-tubes having become impervious; consequently, not only a smaller quantity of air is admitted into the lung, but of this smaller quantity the thickened membrane allows no particle to come in contact with the blood. The

breathing must, therefore, be more laborious; and that consequence will sometimes exist to such a degree as, during excitement, to threaten suffocation.

Symptoms of thick wind, however, may arise from other causes. Most round-chested and very fat horses are disposed to become thick-winded; because the cavity of the chest cannot sufficiently enlarge to foster the health of the body. This fixed diameter of the chest will not permit the lungs to expand freely and fully during active and continued exertion. A horse may be kept too much in the stable, and, from a want of needful exercise, become thick-winded; because the lungs cannot instantaneously accommodate themselves to the full and deep breathing which occasional exertion demands. A horse working on a full stomach may become thick-winded, because the diaphragm being forced forward by the loaded digestive organ, there is not room for the lungs perfectly to expand; and during the struggle which necessarily ensues, the delicate air-cells are ruptured.

The frequent occurrence of thick wind after inflammation affords additional proof that prompt treatment should remove the congestion, and anticipate the effusion of febrine; this takes place towards the termination of inflammation, causing *hepatization* of the lung, or the converting it into a solid substance, like liver; and consequently rendering the portion thus changed unfit for the purposes of respiration.

Of the medical treatment of thick wind little can be said. The cells once obliterated can never be restored. All that can be done may be comprised under the following heads:—attention to diet; giving

the food in as small a compass as possible; more corn and less hay; not working on a full stomach; regular exercise; and exacting from the horse only that degree of exertion of which he is capable without distress. Such care will gradually increase the animal's capability of endurance, and his power of performing profitable labour will reward the consideration of his proprietor. By these means, a thick-winded horse may often be made serviceable for all ordinary purposes, though the animal thus affected should never be driven hard or forced to undergo unusual exertion.

BROKEN WIND.

This is sometimes the consequence of violent and protracted inflammation of the lungs; and it is also the result of low diet and over-work; more frequently it is owing to bodily exertion upon a loaded stomach; and not unseldom it is produced by coarse or watery food deranging the digestion. It is precisely what its name imports: it is a rupture of some of the cells of the lungs. The consequence of this is, that the integrity of the lung is destroyed; certain of the finer tubes leading to the ruptured cells are obliterated; the entire structure is as it were confused; the air is readily admitted into the lungs, but the elasticity being lost, cannot without great difficulty be forced out again. This satisfactorily accounts for the peculiar method of breathing which distinguishes the broken-winded horse. He inspires spasmodically; the expiration, or return of the air from the lungs, is, however, accomplished by a double effort; one succeeding to the other, the first being consequent upon

the contraction of the ribs, followed by a desperate attempt of the abdominal muscles to complete the respiration, and the last being the more evidently laborious.

Broken wind is accompanied by other symptoms. The horse has a ravenous appetite. The abdomen is enlarged; he is constantly breaking wind, or is habitually flatulent. A short hacking cough exists; and is easily recognized as characteristic of the disease. The muscles are pale and flaccid; the coat rough and staring; the countenance dejected, and it is almost needless to state that such an animal is not in possession of its natural powers; it is decidedly unsound. The low horse-dealers know this, and employ many practices to conceal the disorder. They give the horse large quantities of fat or tar, or shot, or sedative medicine; and for a time these will render the symptoms less conspicuous: but the disease certainly returns, and often the horse perishes, in consequence of the treatment to which he has been subjected. A full draught of cold water will generally expose this trick; or by coughing the animal, the sound emitted will declare the state of his wind.

Nothing can be done for a broken-winded horse in the way of medicine. The disease, however, may be palliated to a considerable extent, by attention to diet and exercise, in the manner just described when treating of "Thick Wind."

CHRONIC COUGH.

This is a frequent consequence of chest diseases; but still more so of laryngitis, or of confirmed in-

digestion. Whenever the membrane of the windpipe is inflamed, great soreness and irritability of the larynx will long remain. When the membrane is irritable, a very trifling cause will produce cough. The act of coughing is a proof of this irritability: the effect increases the cause; and the cough speedily becomes habitual: therefore it is that chronic cough is so difficult to remove; for we can neither get at the disease, nor stop the coughing, which is hourly increasing its intensity. Chronic cough, however, often exists to such a degree as to interfere with soundness; therefore every reason exists why we should be anxious for its removal. As it can be traced to chronic inflammation or to irritability of the larynx, a mild blister, extending from ear to ear, may be tried. It cannot do much harm; and the slight blemish which it occasions will soon disappear. However, it is rare for a blister to do any vast good.

Medicine will sometimes relieve the cough, and may be tried to a certain extent. If the cause is unknown, a sedative medicine that will gradually allay the irritability, and yet not interfere with the appetite, may be daily given.

RECIPE (No. 30).

Ball for Chronic Cough.

TAKE—Belladonna, one drachm ;

Tar and linseed meal sufficient to make a ball:

Let this be given every night.

In a few instances chronic cough seems to be connected with worms; and the groom oftener attributes it to this cause than he is justified in doing. If,

however, the coat is unthrifty; the flanks tucked up; if there be mucus around the anus; and particularly if worms are discharged in the fæces, it will be proper to put the connexion between the worms and the cough to the test.

RECIPE (No. 31).

Worm Ball.

TAKE—Emetic tartar, two drachms;
Linseed meal, four drachms:

Make them into a ball with palm oil.

One of these balls should be administered every morning, a quarter of an hour before the horse is fed. A dozen may be thus given, and afterwards a physic-ball. If the cough is lessening but not gone, another dozen of the balls will probably remove it; but, even should no benefit have been obtained, it nevertheless may be worth while to incur the expense or trouble of the second course of the medicine.

Some benefit will be effected by attention to feeding. The oats and the hay should be good; a full allowance of the former, and a somewhat diminished one of the latter, should be given; all food being warm and scalded; especially carrots should be allowed if this is at all practicable. Cough is occasionally produced by gastric derangement; and, therefore, while the food is improved, the bowels should be regulated by mashies or by green meat, and the stomach strengthened by a daily allowance of good stout. In colts, however, while the teeth, and more especially the tushes, are being cut, cough is frequently present; and then the treatment will consist

in lancing the gums, feeding upon prepared food, and thus abating any immediate symptoms, without attending to the cough, which will subside when dentition is perfected.

ROARING.

This consists in any unnatural sound emitted during inspiration. Some horses make a noise in breathing, even when standing still; but in general the sound is heard only during exertion. It is caused by any impediment to the passage of the air through the nostrils, fauces, larynx, or trachea.

Roaring is either acute or chronic. Acute roaring is consequent upon some disease, and usually subsides as the disorder which occasioned it is mastered. Chronic roaring, which is decided unsoundness, is not so easily got rid of. Any tumour in the nostrils, or thickening of the nasal membrane; any effusion into the fauces, or enlargement of the glands, may produce it; and then it will occasionally yield to treatment, but it requires a Member of the Royal College of Veterinary Surgeons to point out the measures which should be adopted. It is very frequently induced by the colt being cruelly *lunged*, or by its head being unnecessarily reined up during the process of breaking. If the animal escape this danger, however, should he be destined for one of the carriages of the nobility, he will generally upon being taken into work become a roarer. Fifteen out of every twenty roarers are carriage-horses. These animals are not more than others disposed to exhibit this affection: but it is the fashion to rein them tightly, in

order to arch their necks. This silly and cruel practice either paralyses the nerves of the larynx, and thus produces absorption of the muscles of the part and falling in of the cartilages: or occasions distortion of the larynx or the windpipe. Bands of lymph across the windpipe have also induced roaring; but they are by no means so common as is supposed.

To detect a roarer, the horse may be suddenly frightened, when a grunt will be emitted. The cough also is peculiar, and should be studied. It is not difficult to recognize it; but it is almost impossible to describe a sound. These proofs are, however, not conclusive: but the animal should be galloped up-hill, or over heavy land, and then the point will certainly be decided.

The cause must be discovered if possible. It will be readily suspected in a carriage-horse; and the anatomist will detect it by a careful examination of the part. If there is distortion, the case is hopeless: but when being of the acute kind it can be connected with disease, and is not thoroughly established, sedative medicine, blistering, and setoning may upon consideration be tried. The tar-ball recommended for chronic cough (Recipe No. 30, p. 106) may also be given. In the majority of chronic cases, however, the labour of the practitioner will be lost, and the roarer may be dismissed as incurably unsound. The horse nevertheless may be highly useful. For speed or for long journeys he certainly is no longer available; but were such an inquiry practicable, it would surprise the reader to learn how many confirmed roarers are working at the present time in London streets.

CHAPTER XVII.

PLEURISY.

THIS is inflammation of the membrane covering the lungs and lining the chest. Its causes are the same as those of inflammation of the air-passages or the substance of the lungs, viz., exposure to cold; sudden alternations of temperature; hard riding; to which may be added, as more likely to produce pleurisy than pneumonia, the absurd practice of leading horses, when hot, into cold water, in order to save a little trouble in washing them. Riding against a sharp wind in a cold winter's day has produced pleurisy; and wounds which have penetrated into the chest, and injured the pleura, without reaching the lungs, have given rise to it in intensity.

A careful observer will easily distinguish between inflammation of the investing membrane of the lungs and that of the lungs themselves. Many of the symptoms in both cases are alike. The preceding shivering fit; the loss of spirits and appetite; the hanging of the head; the disinclination to move—all are the same; the cough, also, is similar; excepting that it is shorter and more painful in the present disease;—all these for the most part are characteristic of both disorders; but there are other symptoms peculiar to this complaint.

The breathing is different. In pneumonia it is quick, but laborious, and the flanks heave. So, also, in pleurisy the breathing is quickened; but its character is altered. It is sharp, spasmodic, and catch-

ing. The horse must inhale the air ; but he evidently obeys the necessity with reluctance. The inspiration is timid and cautious ; but it must be made. It is, however, never full ; before it can be completed, the pain which it induces obliges the animal to desist, and with a jerk the breath is expelled.

The ear applied to the ribs of a horse suffering from pleurisy will detect a grating sound. When that is heard, the evidence as to the nature of the disease may be regarded as conclusive ; but, if farther proof be wanted, it will generally be seen in the quivering of the muscles, or circumscribed corrugation of the skin upon the fore parts of the body.

This disease being inflammation of the lining membrane of the chest, the sides will also be more or less tender, and sometimes excessively so. This will be rendered evident by tapping, or even pressing between the ribs ; for the horse will then shrink under the hand. The inflammation of pneumonia is more deeply seated ; and, although in both diseases the horse shows that he feels pain by looking anxiously at his sides, he does so more frequently, and the tenderness externally is more generally present during the existence of pleurisy.

In this disease, indeed, the pain is sometimes so severe as to induce the horse to lie down and roll.

One of the most characteristic circumstances, however, is the colour of the membrane of the nose. In pneumonia, this membrane, being a continuation of that which is inflamed, is intensely red ; but there is no connexion between the membrane of the nose and the pleura ; therefore it is never so highly red-

dened as in the forementioned disease: sometimes during pleurisy it is scarcely changed until the lungs begin to be generally affected.

In pneumonia one foot may be cold, and the rest of the natural temperature; in pleurisy two or three may be cold, and, where coldness is not felt, a more than ordinary heat may be detected: and the pulse, which in pneumonia was oppressed, and often scarcely quickened, is here both hard and rapid. It is of importance to attend to these distinctions; because the treatment of the two diseases is somewhat different, and in their terminations they are altogether distinct.

In its main features, the treatment of pleurisy may resemble that of pneumonia. Bleeding will be the first step, and blood will have to be taken until the system responds, or until the characteristic harshness has quitted the pulse.

Bleeding will be followed by the use of sedative medicines; which should be perseveringly administered. Aconite root, in doses of half a drachm, every hour until the pulse is softened, and twice a day subsequently, should be immediately administered. Counter-irritation will be indicated; but the reader must not forget the remarks which were made when treating of pneumonia. In pleurisy the sides must not be blistered; for the disease being near to the surface, the irritation would be more likely to increase than to divert the inflammation which it is the object to remove. The surface of the body however is large enough. It presents plenty of choice as to the situation of a blister; for that part of the frame which is

most remote is still no more than a portion of one general system.

The bowels, if costive, as they usually are in this complaint, should be relaxed by drachm doses of aloes ; for in pleurisy purgation is not attended with the same danger as in pneumonia ; clysters should also be early and repeatedly employed.

The diet should be spare ; and should consist chiefly of mashes, or of green food. The box should be airy, yet comfortable ; and the clothing, without being heavy, should be warm. If the inflamed membrane is so near to the surface, there is a better chance of diverting some of the blood from it to the skin when the animal is clothed comfortably ; and the reader may be certain that he will send more blood from the skin to the inflamed part, if he suffers the animal to stand exposed to the cold.

If the horse goes on well, the pulse will soon change its character ; it will be both slower and softer ; gentler, but at the same time more uniformly powerful. Next to this, the cough will be essentially changed : it will lose its short, stitchy sound, and its evident expression of intense pain ; becoming more loud and full. The horse will not gaze so intently at his flanks ; and he will move about more freely.

There is, however, even more danger attending pleurisy than pneumonia ; and the following are symptoms which denote that the case is going on badly. The horse is fidgety—uneasy—pawing ; he will suddenly stop, to bend round his head ; bringing his muzzle in contact with his side, and gazing mournfully on the seat of pain. All at once the pleuritic

stitch will start up, and he will again begin to paw his litter. He will prepare to lie down in order to try whether change of posture will give him a little ease; he will put himself in the position for it again and again: but he is afraid; he shifts, crouches, bends, trembles, sweats, sometimes groans, and then all at once he drops as if he were shot.

It will only, however, be for a short time that he can lie down. The muscles of his shoulders and chest are required in order to enable him to accomplish the now difficult act of breathing. His pulse gets quicker, smaller, and yet more wiry; patches of sweat break out all over him, and particularly about his sides. All at once, however, he appears to be getting well; the pulse drops perhaps twenty beats in a minute; the face becomes more composed; the horse looks better; he is quieter; the pain has evidently abated; but other symptoms, and fearful ones, appear. The flanks, which before were comparatively quiet, are now worked violently. He obstinately stands fixed like the horse with pneumonia; he not only, like him, is unwilling to move, but, at the slightest motion, his pulse beats rapidly; he looks wildly around him; every limb trembles, and he appears as if he would instantly fall; but he recovers himself, and slowly moves with a staggering gait. The short, stitchy inspiration is now gone; it is all labour; protracted suffocation. Swellings appear under the chest; the pulse becomes faster, but weaker than it was before; till at last the worn-out animal falls suddenly and dies.

The natural consequence of inflammation of a serous membrane has for some time been going on. The

secretion from the membrane has been increased, and a fluid of a various character has been rapidly effused into the chest: it has been pressing upon the lungs; it has prevented their expansion. As the cavity has filled, a greater portion of the lungs has been compressed; and the animal has experienced the horrors of lingering suffocation.

The chest of the horse which has perished of pleurisy may, on one side, or perhaps upon both sides, be filled with a serous fluid,—pale or yellow, or bloody: flakes of coagulated lymph may be floating in it; or these may have been only deposited over the pleura, thickening and discolouring the membrane. The pleura in a horse which has died of pleurisy generally peels easily off; but at other times it will closely adhere to the ribs; while bands of lymph may be thrown across; connecting the pleura upon the lungs with that on the sides of the chest. The lungs are not gorged and black with congestion: but they are of a dingy leaden-purple colour; often so collapsed as to appear not more than one-fourth of their natural size.

In other fatal cases of pleurisy, no water will be discovered in the chest; but the membrane lining it will be found thickened, opaque, red, and, in rare instances, almost gangrenous in patches.

HYDROTHORAX.

It is of great consequence to detect the commencement of effusion, in order that measures may be taken which will give a chance of arresting its progress. The first symptom, and one that can scarcely be over-

looked, is the gradual diminution of pleuritic pain. The next requires a little tact in the medical attendant, in order to be discovered. Horsemen begin now to be aware that, by applying the ear to the side of the animal, the murmur of the air as it passes in and out of the lungs, can be distinctly heard. The effusion of hydrothorax, as it is secreted, falls to the bottom of the thorax; it is there interposed between the lung and the ear of the listener; and being thus placed, prevents the murmur from being heard. When, therefore, the ear being applied close to the bottom of the chest, can detect the natural murmur, the examiner may be assured that there is no fluid yet thrown out. But when all is silent there, although the murmur continues to be heard when the ear is placed a little higher up, it is quite certain that effusion has commenced, and will probably proceed. A diarrhœa very difficult to check, and a rapid wasting, may accompany effusion into the chest.

In the majority of cases it is only at the commencement of the effusion that it can be attacked with any well-grounded hope of success. It is the signal that inflammation has reached its termination; that debility has succeeded; and common sense will dictate that the line of treatment must be essentially altered. The measures must be immediately changed. Every thing must be done to counteract the exhaustion, which the effusion will increase. No diuretics must, on any account, be given, under the idea of exciting the kidneys. Such medicines are weakening; the only hope of saving the animal now lies in the chance of our being able to invigorate the system. Tonics are,

therefore, indicated; but, at the same time, we desire to promote absorption. Happily we possess a medicine in which these valuable properties are combined. The iodide of iron is both powerful and safe; it will answer the intention admirably, and may be given in the following form:—

RECIPE (No. 32).

TAKE—Iodide of iron, a drachm ;
Powdered nux vomica, a scruple ;
Gentian, four drachms :

Make into a ball with honey, and give thrice a day.

As, however, the iodide of iron is of a very perishable nature, and on that account may not be always obtained in country places; and as, moreover, when it can be procured, it is an expensive medicine; the following may, under circumstances, be substituted for it:—

Iodine, a drachm ;
Sulphate of iron, a drachm.

The other ingredients are to be retained; and the ball to be administered at the periods before directed.

At the same time the food should be of the best kind. Ground and scalded beans and oats, with malt mashes, should be freely allowed; and whitened water or thin gruel must not be withheld under the idea of drying up the fluid by keeping the horse in an agony of thirst. Let him drink as much as he pleases—the draught will add to his strength, and check rather than increase the disease.

The effusion, however, being established, the practitioner should think seriously of getting rid of the

fluid by an operation; thus relieving the lungs from oppression; encouraging the return of strength by enabling the compressed lungs to expand and arterialize the blood. If, by the stillness at the bottom of the chest, and by that stillness advancing upwards, he is assured of the existence of effusion; the practitioner should have recourse to *tapping* the chest, and evacuating the fluid. If he does this early, he will secure the following very important advantage—the lungs will sooner return to the discharge of their proper function; for the portion which has long been compressed by the fluid, and rendered flaccid, very slowly, or never, recovers its healthy action.

The operation is simple in the hands of a skilful surgeon, and to him it must be consigned. To him, however, it may be hinted, that the chest should afterwards be frequently examined, by applying his ear to the side; that if fluid continues to be effused, and to occupy the chest, it must be drawn off again. The most desperate cases will thus be, occasionally, at least, successfully combated. One of the reasons why this operation has been so seldom successful is—because the practitioner has contented himself with having once evacuated the chest; and has not considered the disposition to effusion must remain until by good food, kind nursing, and proper medicine the weakness left by an acute disease has been destroyed.

In man, however, when the effusion has once commenced, it will continue in spite of all that can be done; in the horse, should the animal apparently recover, there is no disease after which he is so liable to a relapse. The horse reviving from pneumonia

must never be securely reckoned upon: the horse saved from an attack of pleurisy will long be an object of suspicion. The pleura has to recover from its maceration—the lung has to recover from its collapse: the cough, the swelling of the legs, the disinclination to work, and the occasional stitchy pains, will often remind the owner that the horse is not altogether safe.

It must not be forgotten—indeed, cannot be too often repeated—that the various diseases of the chest often coexist, rendering the symptoms more obscure and dangerous.

CHAPTER XVIII.

CARDITIS AND PERICARDITIS; INFLAMMATION OF THE HEART AND ITS INVESTING MEMBRANE.

THE heart is the grand agent in circulation. It is the central pump, by the power of which the vital fluid is distributed to every part of the frame. It sympathizes with every irregularity in the various structures which compose the body. If there is inflammation in any part, it is sure to be marked by the throbbing and increased action of the vessels of that part; and it will not be long before the heart partakes of the irritation, and the pulse will be evidently affected. But the heart is subject to disease, independent of any sympathy with the different portions of the frame. It is itself the seat of inflammation. Carditis is a disease, not of frequent occurrence; but which is sometimes seen, and requires the most careful attention.

It is recognized by a quickness and strength of pulse, referable not to any general affection, but to the heart. Not only by applying the hand or the ear to the side is its violent action ascertained; but the pulse is *seen* to beat in places where during health it cannot be detected. If the left side of the horse is regarded with attention, the chest evidently vibrates; nay, the pulsations are also to be *heard*; they are heard as soon as the practitioner, if he listens attentively, enters the stable; and sometimes they are so audible as to force themselves on the observation of those who stand outside the building. At the same time there is an unnatural fire, a peculiarly haggard expression in the countenance of the horse during this disease.

The real character of the disease being understood, there can be no doubt as to the treatment that should be pursued. The horse must be bled. The morbid excitement of disease must be lowered, by taking away some of the stimulus which feeds it. There must be no delay about this; for, if an organ that is always at work is over-excited, and called upon to perform double labour, it will necessarily quickly be exhausted.

The bleeding should be closely followed up by laxative medicine; linseed oil being the safest, of which two pints may be given. Sedatives should quickly succeed, particularly powdered aconite root in doses of two drachms each: while all food should be removed, or, at most, mash only be allowed.

Although a violent disease, it usually yields very readily to this prompt treatment.

Inflammation or over-action of the heart itself has

hitherto been spoken of; the covering of the heart is also liable to inflammation equally dangerous; and the disease is termed—

PERICARDITIS.

This disease, however, can seldom be recognized in a living horse; or, at least, Veterinary Surgeons have not yet sufficiently agreed on its distinguishing symptoms; nor has the cause of it been clearly ascertained, excepting as connected with carditis, or with pleurisy. In the first case, the symptoms of carditis continue for a while; the throbbing of the heart is seen, producing a spasm of the whole frame; at length, when a fluid begins to be effused within the bag, there is an irregular action of the heart, attended with laborious breathing, and a feeling of suffocation. The horse is dull, weak, and languid. He sighs frequently; but rarely turns his head to his chest. The pulse, at first regular but bounding, becomes irregular, weak, intermittent; it is roused to a rapid, fluttering action by the least motion; and it gradually sinks again to almost absolute cessation.

This, however, is so identified with the kind of breathing arising from the pressure of fluid on the lungs, that the one cannot always be distinguished from the other; and, if it could, we should have less power over dropsy of the heart than over that of the lungs. In addition to which it may be stated that, from the situation of the pericardiac bag, effusion of the fluid would be far more difficult to remove than in the case of the chest. The heart, however, has been tapped through the ensiform cartilage of the

sternum; but the operation is seldom successful, and can be performed only by a Veterinary Surgeon who is well acquainted with anatomy. The general treatment, in other respects, would be the same as for hydrothorax; therefore, to that article the reader is referred; it being fortunate that two diseases, which in their symptoms so closely simulate one another, require similar measures for their relief.

ENLARGEMENT OF THE HEART.

The heart is liable to several morbid changes; the most frequent of which is hypertrophy, or increase of its substance. This is sometimes so great as to double the natural size of the organ, and may be attended with an increase of, or a diminution of its cavities.

Sometimes this morbid growth of the heart is of a cancerous nature. We have known the heart double its natural weight, and altered in form, by fungoid growth. The symptoms were principally an irregular pulse with a strong bounding action of the heart, while the horse at length died suddenly.

These cancerous diseases of the heart are, however, uniformly fatal sooner or later; nor is there any treatment which can be absolutely recommended. The symptoms are during life never understood, nor does medicine yet possess the power to check the corroding effects of cancer.

However, the interest of the master will be best consulted by man showing kindness to his servant, so true is the teaching which instructs us that kindness is its own reward.

CHAPTER XIX.

SPASM OF THE DIAPHRAGM.

THIS disease is introduced here because it may be confounded with carditis, and should be carefully distinguished from it.

Let it be supposed that a horse a little out of condition, and perhaps with a full stomach, has been ridden far and fast. He is pushed onward after he has shown symptoms of distress; or his own courage carries him forward until he comes to a perfect standstill; then, or soon afterwards, the following symptoms appear: he stands with his legs fixed; his neck stretched out; his nostrils expanded to the utmost; every limb trembling; the flanks heaving, and the countenance exhibiting anguish; there is seen, at the same time, a convulsive jerking similar to that which has been described under the head of carditis; the thumping noise which accompanies disease of the heart is also heard, only louder and more marked.

An inexperienced person might confound this with carditis; and he would set to work to bleed the horse; and as surely as he did so he would destroy the animal. Although this sound is heard from the chest, the heart has little to do with it. *It is spasmodic action of the diaphragm.*

The diaphragm is one of the agents in respiration; it acts principally when the breathing is quiescent; but has had more than its usual share of labour to perform during the late exertion because the system was exhausted. The diaphragm however continued its

action after the muscles of the chest had ceased to contract, because being more independent of the will it was not in the same degree subject to the influence of the sensations. Thus the diaphragm continued to move till that which at first was normal, in the end became a spasmodic action.

A little care will clearly ascertain this. The beating is from the posterior of the chest; but if the ear is applied to the side, the chief sound is perceived not to come from the heart; for the beating of the heart can be heard distinct from the sound which is characteristic of the disease. It can be most readily detected at the sternum, a little below and behind the heart; from that point if a line proceeding obliquely upwards and backwards be traced towards the commencement of the loins, the thumping will be heard all along the course marked out. The beatings of the heart and this noise do not correspond. The heart throbs half as quickly again. The diaphragm beats violently; the heart feebly. There can be no mistake about the matter. As convulsions usually mark the last efforts of expiring nature—thus spasmodic action generally denotes extreme exhaustion, and therefore is a proof of immediate danger.

No one would bleed an animal in a state of utter debility; the horse then wants a stimulant, for a sedative would probably extinguish the flickering flame of life. Bleeding would probably be fatal, and too often the horse is murdered in this way. The proper treatment would be first to administer a diffusible stimulant in a fluid form; it will have the quickest and the most powerful effect.

RECIPE (No. 33).

Cordial Drink.

TAKE—Powdered ginger, a drachm ;
Tincture of opium, an ounce ;
Sulphuric ether, two ounces ;
Good ale, a pint.

Let this potion be administered with all consideration for the state of the animal. Make no more haste than good speed, and remember the slightest impatience may now cause the death of the sufferer.

If in the course of a quarter of an hour no effect is produced, the drink may be repeated again and again, for in cases of this kind there is no time for delay. Do not, however, be advised to give any thing solid. The digestion is too much enfeebled to appropriate it. If ordinary work will arrest the digestive process, how much more capable is total exhaustion to render the stomach inactive.

A cordial ball is an excellent thing in its way, but however good on general occasions the best would here be sadly out of place. However, the following is a good one of its class, and upon the symptoms subsiding, one of these dissolved in lukewarm water may be attended with good effect.

RECIPE (No. 34).

Cordial Ball.

TAKE—Powdered capsicums, half a drachm ;
Extract of gentian, two drachms ;
Carbonite of ammonia, one drachm ;
Powdered camphor, a scruple ;
Linseed meal, a sufficiency ;
Mix with honey and give.

This will form the common cordial ball; but, in spasm of the diaphragm, half a drachm of opium with two drachms of the subcarbonate of ammonia should be reduced to fine powder, and beaten up and blended with the other ingredients; while thin gruel, or white water, warm, should be put in the manger; and the horse should be suffered to drink as much as he pleases.

This plan of treatment will rarely fail of having its effect in rousing the general powers; although it may not immediately reduce the violence of the spasm. But the energy of the system having been revived, more reaction may be excited than is wished. It may be even dangerous; it may possibly run on to inflammation. This is to be guarded against; and should the violence of the pulse denote any fire about to kindle in the frame, the attendant must seize the opportunity and bleed. Six pounds of blood should be taken away; plenty of gruel ought to be supplied; and the horse be left for a while to himself. In less than four-and-twenty hours all will generally be quiet; and a few tonic diuretics will alone be required to complete the restoration.

RECIPE (No. 35).

Tonic Diuretic Ball.

TAKE—Extract of gentian, two drachms ;
Powdered ginger, half a drachm ;
Sulphate of iron, two drachms ;
Nitrate of potash, one drachm ;
Oil of juniper, ten drops :

Beat them well together with so much treacle as may be required to constitute a mass.

This may be given night and morning for a few days, and then changed for the tonic balls if the animal appears to require more medicine.

The *diaphragm* has sometimes been ruptured; which may be produced by too severe exertion. The symptoms are often very obscure, but the most frequent are those of severe inflammation of the lungs combined with signs of aggravated colic.

CHAPTER XX.

TETANUS—LOCKED JAW—AND PALSY.

TETANUS is spasm of the muscles of voluntary motion: it is called LOCKED JAW, because the muscles of the jaw are generally among the earliest affected. It is rarely preceded by any serious illness; but usually appears suddenly, the earliest symptoms being mostly discovered when the stable is first entered in the morning.

There are two kinds of tetanus. To distinguish them, they are called traumatic and idiopathic.

Traumatic tetanus is caused by wounds. Any injury, however small or great, may produce it; but cuts over the eye, punctures into the foot or tendons, have most frequently been followed by it. When caused by a wound, tetanus is more rapid in its course, more violent in its symptoms, generally being of the most acute kind. Traumatic tetanus is, in fact, rarely relieved. Idiopathic tetanus can be traced to no known cause. It comes on without our being

able to account for its appearance. It is more mild, more slow, and more often conquered than is that kind of tetanus which springs from injuries. A case of the idiopathic kind, therefore, holds out some hopes of treatment being successful.

The symptoms which denote that the horse has been attacked by tetanus should be universally known, as every thing will depend upon the disease being recognized in its earliest stage.

The horse is unable to turn his head easily round to his flank; the whole body must turn together, like a deal board; the muscles of the neck are rigid and hard; the nostrils are dilated to the utmost; the ears are erect; the eyes retracted; the haw drawn over them; the countenance of the horse the picture of mute despair. The muscles of the extremities, although less affected, are considerably involved; the poor animal is conscious of his loss of power over them, and fixes himself as securely as he can; nothing but absolute force can induce him to move. The fore legs are wide apart, and inclined forwards; the hind legs are strangely straddling, and inclined backwards; the tail is erect, and in a constant, quivering motion. As the disease proceeds, the horse becomes more and more a fixture; and the jaws are, at length, so firmly clenched, that nothing can be forced between the teeth.

This is a disease of extreme suffering to the poor animal. The human being undergoing the like affliction tells us that his tortures are great indeed; the pain which results from the cramp of one muscle will give some idea of the horrible suffering that must

attend universal spasm, continued, without intermission, for many days. The cramp, however, forms but a portion of the agony which the horse during an attack of tetanus must undergo. The system is in a state of unnatural excitement; the entrance of any one into the stable—a hand laid upon the body—even the noise of an approaching foot—any sight, sound, or touch, may throw the animal into convulsions, or produce such aggravation of the symptoms as shall convulse the entire frame.

In every case of tetanus, we are, of course, most anxious to learn the cause; probably, upon pushing our inquiries, we may gain some information on this head. There has, perhaps, been some slight injury; a nail has been driven too close; or a piece of glass has cut the foot; or a blow has been lodged just above the eye; or the knees have been recently broken; or the stable fork has been used to strike the horse about the legs, and the point of it has only gone a little way into the back sinews. Sometimes an operation has been recently performed: and let not the proprietor blame the surgeon, if such should have been the case. Any puncture, however small, may produce tetanus; but it may not follow the most severe and the largest wounds. No means we know of can start it up, and no care or skill can prevent its appearance. We may learn, however, that the tail has been docked or nicked. The wounds have very nearly healed, and they may look as well as could be desired; or they may all at once have assumed an unhealthy appearance; a thin ichorous fluid may be discharged from them, and there may be a spongy

appearance around the openings. Most commonly the wounds have nearly healed; or are at the moment of closing, without any seeming unhealthy change of appearance, when this strange affection bursts forth.

It is a nervous affection. A fibre of some nerve has been injured,—irritation ensues,—it rapidly spreads along the various branches of that nerve, and, through the spinal marrow, affects the entire body.

For the relief of tetanus there are some persons who adopt very decisive and severe measures. They bleed largely in order that they may gain the full advantage of its sedative influence. When this plan is pursued the blood should flow in a free full stream; it should flow on until the circulation is evidently affected. That will not soon happen, for the irritation is too great, and too general, readily to yield to any sedative; and more than ten or twelve quarts of blood will sometimes be lost before the pulse indicates that any effect has been produced on the circulation.

The consequence of this copious depletion will generally be a temporary remission of the symptoms; and, advantage being taken of the relaxation of the muscles, a strong purgative ball or drink is given.

Having proceeded thus far, the next aim is to attack the disease as much as possible locally. It is evidently a nervous affection. The practitioner, therefore, who admires the severer plan of treatment, endeavours to bring the principle of counter-irritation to bear as far as may be practicable. A blister is applied from the poll to the rump. The common liquid blister (Recipe 24, p. 78) will be as effectual as any. Some practitioners have carried the

principle of counter-irritation a great deal further—they have blistered almost the whole of the sides and the belly. They have by this means excited such extensive inflammation of the skin, that the original affection of the spinal cord has occasionally disappeared. Setons also have been inserted along the course of the spine; but they have rarely been productive of decided good effect. In order to produce more determination of blood to the skin, and thus relieve the spinal inflammation, sheep-skins, applied warm, should be placed on the horse's back; reaching from the poll to the tail, and these should be changed as often as they become offensive.

Another way of treating the disease locally is, to find out the injured part from which the mischief has proceeded. Some nervous fibre may be compressed there:—a few deep incisions across the wound may liberate it. Upon the chance of some morbid action within the wound having produced this sad affection of the nerves, the cautery, or the caustic, has been applied; and rarely, though occasionally, such irritation is said to have been cured. If the disease is from docking, another of the caudal vertebræ has been removed; if from nicking, the incision has been made deeper; or another wound closer to the root of the tail has been incised.

In many cases, however, there may not appear to have been any local injury; but exposure to cold; the dripping of water on the back; indigestible food; or various diseases, are imagined to have produced tetanus; and then general means alone can be adopted.

The physic having begun to work, or having been

repeated until the effect is produced, the practitioner next looks around him for some sedative medicine, in order to allay the dreadful excitation of the nervous system. Opium is thought to be the sheet-anchor here; and, in conjunction with camphor, it is supposed to be almost uniformly beneficial. Two drachms of opium are given as a first dose, with one drachm of camphor; and a drachm of opium, with half the quantity of camphor, is afterwards given four times in the day. Such is the plan perhaps most generally followed; but by no means attended with such results as will establish it to be the only mode of treatment worthy pursuit. In fact, the measures required to cure tetanus have yet to be discovered. The most opposite methods have from time to time succeeded, but all of them have more frequently failed. In the course described as generally practised, depletion carried to the utmost point is depended upon; but stimulants also have been pushed to the extreme, and these likewise have appeared to subdue the disease. Sudden shocks; repeated drenchings with cold water; or pails of water thrown upon the animal; burying up to the neck in a dunghill; turning into a river; and the injection of warm water into the veins, are each reported to have been successful; but none of these plans have, upon being tested, proved to possess much influence over the disorder.

This being the fact, we inquire if the severe treatment is absolutely necessary? In tetanus the pulse is not always accelerated; and bleeding, therefore, is not in every case indicated. The bowels are not in every case constipated; and purgatives are not always required. The benefit of violent counter-irritation is

not demonstrated, and its employment, therefore, is not justified. The best practitioners begin to doubt the efficacy of the active tortures of the old school; and to think that perfect quiet is of more use than violent medicine. If the horse be costive, they administer a purgative, and a bold one; because an ordinary purge will have no effect during the existence of tetanus. They then place the animal where it cannot be disturbed and take care to visit it as seldom as possible. The door is locked and the horse is left alone; every precaution being taken to prevent the slightest noise. The absolute quietude thus obtained has been found to be of more service than any thing else; and the horse which has been thus shut up in silence has more frequently recovered than the one which has been continually annoyed under the pretence of effecting its restoration.

As for food—the horse is not able to take any solid nourishment; but he may have a malt mash more than usually wet in his manger, and a bucket of gruel may be slung in some part of the box; from either or both of which he may, perhaps, contrive to extract a little nourishment. The appetite of the tetanic horse rarely fails him; though he may be unable to eat, he will, under the influence of hunger, manage to imbibe enough for his support. Even if he makes no attempt to touch that which is placed before him, he should be left some days before any effort is made to drench him; and if he takes only a little nourishment, a further period should elapse before he is annoyed by forcing food upon him. Should he, however, appear to be losing strength and to be sinking, of course he

must then at every hazard be supported. Should it be possible to insert a small horn or the neck of a small bottle between his tusches and his grinders, almost any quantity of gruel may be given him; and when he is in a manner starved, it is interesting to see how eagerly the poor creature will take the nourishment which is offered him in this way. The dreadful cramp of the muscles of his neck should not, however, be forgotten; and the gruel should be given to him as gently as possible, and without elevating his head more than is absolutely necessary. Frequent injections of arrow-root or gruel may also be thrown up. Where, however, the proprietor is possessed of the instrument, the ordinary horse catheter, with Read's pump attached to it, will enable any amount of gruel to be thrown into the stomach of an animal which suffers from lock-jaw of the chronic or slow description; not only quickly, but without the necessity of elevating the head. The horse catheter is simply passed up the nose, along the floor of the nasal chamber; and being pushed onward it will enter the gullet. When the tube is inserted its full length, the fluid may be injected. This stratagem answers admirably; and subjects the horse to little annoyance. Some animals, especially when acutely affected, are so irritable, that any interference throws them into convulsion; and, in such cases, perhaps the injection of nutritive liquids into the rectum is even more than the symptoms will permit to be done.

In a disease of this nature the humanity and patience of the attendant must, however, be exerted. These virtues will aid him more in the end than all

his science; however learned he may be. The disease may terminate quickly. We have known a horse to die of it in less than thirty hours. So speedy a close, however, is rather unusual. The animal with idiopathic tetanus often lingers. It occasionally happens that the horse does not begin to amend until ten or twelve days have elapsed; and in one case that occurred in the practice of the editor of this work, a month passed without more than an occasional remission of the symptoms. The treatment was, nevertheless, persevered in, and the animal eventually recovered.

When the horse does begin to get better, not a particle of medicine should be administered. By giving tonic medicines much dangerous excitation may be produced. The best tonic is nourishing food, and even that should be supplied with caution. Green meat will in these cases be useful. If the weather, however, will admit of it, after the recovery is confirmed, a run for two or three hours every day will be of essential benefit.

PALSY.

The horse is seldom or never subjected to that kind of palsy which oftenest attacks the human being,—palsy of one side; nor has he ever general palsy. When it does occur in its most developed form, it is usually paralysis of the hinder limbs, and then it is rarely complete; but the motion of the parts is rather deteriorated than lost. It may be the consequence of disease. Much stiffness of gait always accompanies inflammation of the kidneys, and sometimes it degenerates into palsy; which has also been the consequence

of inflammation of the bowels—severe purging—exposure to cold, excessive exertion, and poisons; but it is oftener the result of injuries of the spine, caused by accident or brutality. Falls in rapid action, and more particularly in leaping; awkward casting, or violent struggles after casting; blows on the back or loins; a heavy rider urging a small or weak horse too far or too fast;—all these may be causes of palsy: yet most frequently when the affection appears it can be traced to no well-marked source.

If palsy is the result of previous disease, it will sometimes disappear when its cause is removed. Should it not, warm clothing, and the application of stimulating liniments, as the mustard poultice, or the common liquid blister (Recipe No. 24, p. 78), must be resorted to.

RECIPE (No. 36).

The Mustard Poultice.

TAKE—Of mustard flower and linseed meal equal parts, and mix them together with a sufficient quantity of warm, not hot, vinegar.

This is a powerfully-external stimulant, and perfectly safe.

When palsy is the result of accident, the horse should be examined; and if there is occasion for it, the back or loins may be well fomented several times in the day, for two or three days; at the end of which period should the palsy be present the mustard poultice or liquid blister should be applied. Slight contusions or sprain of the spine may be thus relieved: and then a charge should be placed over the back and loins, and the horse having a fair allowance of

oats should be turned out to grass. However, when the spine is decidedly fractured, all treatment is hopeless. These lesions may spring from seemingly inadequate causes; the only proof of the existence of such a fracture being the animal sitting up on the haunches like a dog; but, at the same time, having lost all sensation and power of motion in the hinder limbs.

The action of medicine is uncertain in this disease; but the iodide of iron and the nux vomica in powder have appeared to do good. They may be used separately or together; working the dose of each from half a drachm to as much as the horse can bear. Then the quantity of each must be lowered to half a drachm, and both be administered in combination. A ball is the best vehicle for these medicines; and the bulk required may be created by linseed meal and treacle, mixed together; or gentian and ginger occasionally may be substituted for the first ingredient. It is scarcely credible to what extent the spine will often appear to have suffered upon examination after death. Anchylosis, or loss of motion in the joints, has, in aggravated cases, extended along almost the whole of the back. A very common and unsuspected cause of this is the narrow stall of some crowded or ill-built stable. The horse is often compelled to bend himself into a half-circle in order to turn. The ligaments of some of the joints of the spine must be stretched by this; and especially when the animal is forced to bustle round as quickly as he can at the command of a brutal servant. Such injury may appear to be slight at first; but its frequent repetition

causes inflammation, and converts the ligaments of the spine into bony matter.

CHAPTER XXI.

INFLAMMATION OF THE STOMACH—POISONS—RUPTURE OF THE STOMACH—BOTS—WORMS.

THE stomach of the horse is very small compared with the bulk of the animal. Nature designed this, in order that its weight might not rest too oppressively on the diaphragm, interfering with the action of that important respiratory muscle.

The stomach is not only small, but it is singularly constructed. More than one-half is covered with insensible cuticular membrane; and the remainder is enveloped in villous membrane, similar to that which lines the intestines. The food is first macerated within the cuticular portion of the stomach; and then by the muscular portion of the part moved to the villous coat, where it undergoes digestion. Inflammation of the stomach, unless caused by eating too large a quantity of food, is not characterized by any symptoms which can readily be interpreted; signs of acute colic attended with violent thirst would, in such cases, be exhibited.

The stomach, however, occasionally becomes inflamed through the administration of poison. The most common vegetable poison is the yew. The horse will rarely eat it when green: but the half-

dried clippings of the yew-tree are now and then picked up and devoured by horses. This distinction should be well remembered when any case of supposed poisoning by yew occurs. The horse may often graze without danger, although there are yew-trees about; or although the field may be surrounded by a yew-hedge. Natural instinct will teach him to avoid that which would be hurtful; but when the clippings are dried, the smell of the yew is considerably changed, and danger naturally results.

The principal symptom of this kind of poisoning is a strange sort of drowsiness. The horse stands, propped up by a gate or wall, with his head hanging down almost to the ground; and he is regardless or unconscious of every thing around him. At other times he lies down, breathing loudly and hardly; and is with difficulty roused to momentary attention, while it is almost impossible to make him rise. In this way he sleeps or dozes on, until slight convulsions occur, when he may die suddenly.

The nature of the poison having been ascertained, with this knowledge, likewise, comes the fact, that no known antidote has yet been discovered for this vegetable poison. It is, however, powerfully narcotic in its action; and consequently the following measures are indicated: to keep the animal constantly upon the move; never to allow him to rest till the potency of the poison has been overcome; to administer stimulants of the most active kind; such as ammonia in solution; ether likewise dissolved; spirits of turpentine; strong ale, and even pepper.

The Mayweed (a species of wild camomile, *Anthe-*

mis cotula) has sometimes, like the yew, caused violent illness and death. This is seldom eaten when found green in the field; but when mingling in its dried state with the hay, it has produced mischief. The animal in this case should be drenched with the gruel and vinegar; and if costiveness follows, sixteen or twenty ounces of linseed oil, guarded by half a drachm of chloroform, should be given every six hours, until the symptoms improve.

The Water Parsley has sometimes produced palsy; and the Water Dropwort has poisoned the horses that have eaten it. When this occurs the animal should be treated as in the previous case.

If horses are destroyed by the mineral poisons, it is generally to be attributed either to design or unskilful treatment. All of the mineral poisons, in certain doses, are useful in many diseases; in fact, they sometimes constitute almost the only means of cure: but the dose being too large, or the use of the drug too long persisted in, the animal may be destroyed instead of the disease.

It is fortunate for the horse that ARSENIC is not frequently resorted to, as an internal medicine. It was always a dangerous tonic, and especially after acute disease. In cases of worms it has been given with fatal effect. It may be used with less danger as an external application: but it has occasionally done mischief even here, and there are many safer and better caustics.

The symptoms of poisoning by arsenic are—the evident expressions of intense pain; the presence of excessive thirst; the eager gaze at the flanks; the

pawing and rolling; the membrane of the eye is of a deep scarlet; the saliva runs from the mouth: while the purging is profuse, fetid, and sometimes will be passed with blood.

The case may not always be quite so plain; but the owner may wish to ascertain the truth or falsehood of some horrible suspicion. The presence of arsenic is very easily detected by chemical analysis properly conducted. The process, however, is too complex to be here detailed; and the reader is therefore referred to any of the many excellent works which dwell particularly upon this subject.

The treatment will rarely be successful. The poison will too frequently have done its work when the symptoms become sufficiently urgent to be recognized. Plenty of thin gruel or whitened water, which the horse will drink with avidity, and two drachm doses of opium repeated every half-hour, afford the best chance of saving the animal.

Poisoning from CORROSIVE SUBLIMATE is usually the result of unskilful treatment. Lotions of it are employed for the cure of mange; or for the destruction of vermin; and, unfortunately, it is much more easily absorbed than arsenic. Sometimes, also, the animal may lick from its body a fatal portion of the drug.

The symptoms are nearly the same as those from poisoning by arsenic. The remedy will consist of the whites of eggs mixed with starch or gruel, and the frequent administration of opium.

RUPTURE OF THE STOMACH.

The horse not being able to vomit if the stomach be distended, and by the distention not paralyzed, it will contract upon its contents; but, not being able to urge them forward or to cast them upward, the viscus is often torn asunder by the efforts which nature makes for its relief. This is always fatal; and yearly destroys many animals. Old horses, those which are kept long out fasting; then brought home to have a loaded manger placed before a ravenous appetite: these are the animals which most frequently die from rupture of the stomach. The work and long fast deaden the sensibility. Hungry and weak, they feed and feed without nature warning them that the stomach is full. At length a drowsiness ensues: symptoms of colic may follow; but more often they do not appear. The animal then suddenly seems better; but the lesion has taken place; and the horse experiences only a temporary relief. The signs which are generally regarded as indicative of violent colic now commence in earnest. The pulse is quick but sharp, although, at the same time, small. There are efforts to vomit; and the horse not only rolls, but he may sit upon his haunches. The head is turned to the side, and with the foot the belly is struck. The pulse becomes more hurried. The breathing grows quicker; the brain at length sympathizes; the horse wanders about for a time, and then expires.

In these cases nothing can be done; and, in fact, could the existence of the injury be correctly ascertained, the knacker should be employed instead of

the Veterinary Surgeon. As, however, the symptoms are very close to those of general abdominal disease, it would be wrong to abandon every animal in which the possibility of ruptured stomach was suspected. The proper course, therefore, will be to treat the horse in such a manner, as, in the opinion of the practitioner, the symptoms require; and on this subject direction may be gathered from those found under the heads of colic, inflammation of the bowels, and of the peritoneum.

WORMS.

BOTS are the larvæ or maggots of a species of gadfly (the *Æstrus equi*), that deposits its eggs on those parts of the horse which the animal is most apt to lick. The egg is hatched by the warmth and moisture of the tongue; the newly-born worm is conveyed into the mouth; thence carried down the œsophagus into the stomach. It adheres frequently to the cuticular coat of the stomach, by means of little hooks, with which its mouth is furnished; and there it remains from the summer of one year to the spring of the next; nourished by the mucus of the stomach, or by the food which it contains. Then, having attained its full size as a maggot, it loosens its hold; it is carried along the intestines, and evacuated with the fæces. Before it drops, it generally clings for a while to the verge of the anus; while doing this it tickles and teases the horse. When the groom sees the bot under the tail, he is alarmed; and administers injurious purgatives, to get rid of the evil.

Bots, except they exist in considerable numbers,

may do no great harm during their residence in the stomach of the horse. The advice, therefore, to the owner would be—let them alone; or, at most, be content with having them picked off when they appear beneath the tail. There are two good reasons for this;—the first is, that there is not any medicine that will expel them: the strongest and even the most dangerous purgative is for this purpose insufficient. The horse may be injured or destroyed by the violent measures adopted; but the bot sets all physic at defiance. The second reason is: that, if the bots are let alone, they will, in due time, all come away without our meddling. At the latter end of the spring, the larva detaches itself from the stomach; is carried along the intestines; drops on the ground; burrows into it; and becomes a chrysalis or grub. In a few weeks it undergoes another and more wonderful transformation;—it awakens from a state of sleep; bursts through its horny shell; and assumes the form of a fly, to lay eggs and give rise to bots in some other animal.

There are, however, WORMS in the intestines which are more often injurious to the horse; yet seldom to the extent which is feared. The small intestines contain a round white worm, from six to fourteen inches in length. This worm (the *Lumbricus teres*) in its general figure very much resembles the common earthworm; and it lives either upon the mucus of the bowels, or the nutritive part of the food. A dose of physic will often expel an almost incredible number. The appearance of one or two will at once suggest the propriety of adopting measures for the removal of that which is then known to exist.

When the bowels are full of these parasites too much nourishment is taken from the animal; and they constantly irritate the coats of the intestines. The proof of the existence of these worms will be the unthrifty appearance of the horse; the enlarged belly; the staring coat; the ravenous appetite; or a harsh hollow cough.

Even now it will not be necessary to have recourse to any violent measures. No strong mercurial physic, which endangers or half kills the horse, is needed. The following ball will usually be effectual in the expulsion of the parasites.

RECIPE (No. 37).

Worm Ball, for Long, round Worm.

TAKE—Emetic tartar, two drachms ;
Powdered ginger, half a drachm ;
Linseed meal, six drachms :
Make into a ball with palm oil.

One of these balls should be given every morning, half an hour before the first feed; and, after ten or twelve of them have been taken, the horse should have a dose of common physic.

The owner should not be dissatisfied if only a few worms are voided. They are usually destroyed within the intestines; and, the preservative power of life being lost, they are digested. The best proof of the medicine having been effectual will be that the worms cease to appear; and the horse improves in condition.

Another kind of worm (the ASCARIDES) inhabits the larger intestines; and particularly the last of them—the rectum. It is a little worm, one inch and

a half in length, and not thicker than ordinary thread; but these annoyances often exist in very large quantities. They are rarely dangerous; but they occasion distress; causing great irritation and itching about the anus; and provoking the horse to rub the hair off his tail against the wall of the stable: sometimes, though seldom, they have produced extensive inflammation.

The strongest physic, as it is usually administered, will seldom expel the ascarides. They must be attacked in their stronghold.

RECIPE (No. 38).

Injection for Ascarides.

TAKE—Powdered aloes, half an ounce;

Powdered gum-arabic, half an ounce:

Pour on them half a pint of boiling water; shake the mixture well until the aloes are dissolved or suspended, blend with the yolk of an egg, and add

Train oil, one quart.

Stir the ingredients well together until they are thoroughly incorporated.

Let this be injected into the rectum every morning, as long as any ascarides are voided.

There is another slender worm which somewhat resembles the ascarides, though rather longer and larger: it is called the **STRONGYLUS**, and, when voided, its body is dark.

In the treatment of them, as well as other kinds, due regard should be paid to the general health. Powerful medicines should not be given, as great debility may be present; but vegetable tonics should be first employed to amend the condition of the animal, especially as science is yet unacquainted with the drug which has power to destroy the Strongylus.

CHAPTER XXII.

INFLAMMATION OF THE INTESTINES—PERITONITIS—
ENTERITIS—DYSENTERY—SPASMODIC COLIC—FLA-
TULENT COLIC—IMPACTMENT—STRANGULATION—
CALCULI IN THE INTESTINES.

UNDER the general name of inflammation of the bowels there are included two diseases which are properly distinguished by different names.

PERITONITIS; INFLAMMATION OF THE EXTERNAL OR
SEROUS COAT OF THE INTESTINES.

This is a very frequent disease. It is caused by the application of cold water to the belly of the horse; either by taking him into the pond, or washing him with cold water; and sometimes by suffering him to drink plentifully when he is heated. Exposure to rain; over-exertion on a full stomach; and injuries, have produced it; also it not unfrequently occurs during the later stage of inflammation of the lungs; but the disease will likewise sometimes occur without any assignable cause. From whatever source it arises, it runs its course with fearful rapidity. Like pneumonia, it sometimes destroys the horse in less than twenty-four hours; and occasionally in less than twelve.

The symptoms of peritonitis should be carefully studied; for many a horse will be lost if they are not early recognized. One of the earliest symptoms is the expression of very acute pain. The animal paws;

strikes at, although he only lightly touches his belly ; looks at his flanks with a more sudden turn, and a wilder gaze than during inflammation of the lungs ; rolls, struggles violently ; lies upon his back, groans ; the legs are cold ; the mouth dry, sometimes hot, and rarely cold ; the membrane of the nose is a very little reddened, sometimes paler than the natural hue ; the flanks heave violently ; the horse shivers and sweats ; the pulse is quick and hard ; while the belly is hot and exceedingly tender. The violence of the symptoms, however, soon abates ; and the horse rapidly becomes scarcely able to stand.

This disease may be distinguished from colic by the pain, which, though less violent, is without remission ; also by the character of the pulse ; by the tenderness of the abdomen ; and by the *fæces* being covered with mucus.

The treatment is plain. The patient must be bled ; the stream must flow until the character of the pulse has changed. In the early stage the horse will lose a certain quantity of blood almost with advantage : but, twelve hours having passed, the strength of the animal will be exhausted ; and copious bleeding will not be practicable, or, if it were, it would not be safe. Then refuse to bleed, but in lieu of it, administer drachm doses of aconite root in water, and repeat the medicine every half-hour until the pulse amends its character. Do this also, if after the bleeding the pulse should again become hard or strong.

The next thought should be about some agent to relieve the bowels of their contents ; which if retained, would probably increase the disorder. Strong physic

is out of the question; the bowels are already too irritable; it would be adding fuel to fire: but a mild aperient may be administered. Linseed oil, however, is the only aperient that can be ventured on. A pint may be given, guarded by a drachm of chloroform, and the following should shortly afterwards be administered:—

RECIPE (No. 39).

TAKE—Tincture of opium, two ounces;
Sulphuric ether, two ounces;
Cold water, one pint.

This medicine may be repeated every third hour after the oil has been exhibited. Frequent injections of a warm, but of a sedative nature, should likewise be thrown up.

Next comes the important principle of counter-irritation. The whole of the belly should be stimulated. Hot fomentations to the abdomen should be employed; and, in cases where hot water is not to be obtained, cloths soaked in the coldest spring water may be applied, each being removed and renewed so soon as it shall become warm. Where a speedy and powerful vesicant is required, and the necessary drugs are at hand, the strong liquor ammonia, diluted with six times its quantity of water, will be found to answer every purpose.

A thin cloth, once or twice doubled, should be made wet with the liquid, and placed next to the skin; while over the cloth another, thicker and larger, several times folded, should be held to prevent evaporation—thus subjecting the body to the action of those ammoniacal

fumes, which would otherwise escape. In this way all the effects of the most powerful blister may be obtained in a quarter of an hour or twenty minutes. The horse, at the same time, should be warmly clothed, and his legs bandaged; for these may cause some determination of blood to the skin, and thereby relieve the inflamed part.

Of course the horse should, as quickly as possible, be got into a loose box, which ought to be well littered down. Clysters and back-raking are suggested by the very nature of the disorder; and beside all this, a drachm of calomel and two drachms of powdered aconite root, or of powdered opium, ought to be shaken upon the tongue every hour. Peritonitis is so rapid in its course that there need be no caution about the mercury producing salivation; and the opium is imperatively required to deaden pain; for, unless the suffering can be softened, the system will soon fail from sheer exhaustion.

The food, supposing the horse to survive, should consist of mash and thin gruel; except green meat can be procured, which may be given in moderate quantities. It should be perfectly evident that the disease has entirely subsided before any hay or corn is allowed; and, even then, the horse should very slowly return to the use of hard meat.

A quantity of red and often thickish water will be found inside the abdomen of the horse which has perished of peritonitis; and the external membrane of the intestines or the peritoneum will be seen inflamed. Such appearances are conclusive as to what was the character of the disease; and it is by no means rare

to discover such indications in the colt which has died soon after castration. Peritonitis, indeed, too frequently follows that operation; but the proprietor must not, therefore, conclude it has originated from any want of skill on the part of the practitioner. It will best be prevented by observing the condition of the colt before the operation is performed; and as to requisite precautions at that period the farmer is too often sadly neglectful.

ENTERITIS—INFLAMMATION OF THE MUSCULAR COAT
OF THE BOWELS.

This disease, if not in the first instance energetically combated, may, in eight hours, reach a fatal termination. It rarely lasts in its intensity more than twenty-four hours. It is often the consequence of gripes or colic; and therefore it appears to endure much longer than it really does. The wiry pulse, with tenderness of the abdomen, and continuous pain, distinguish this attack from gripes; but from peritonitis it is only to be separated by the *fæces* being in small black lumps and covered with a bilious secretion rather than coated with mucus; perhaps, also, by the belly being not quite so painful upon pressure as in the last affection.

The causes are nearly the same as induce peritonitis; but to these acrid or unwholesome food may be added: and enteritis may not be, like the former disorder, so frequently connected with injuries and with inflammation of the lungs.

In every case of enteritis, spasm is present; and, as this is associated with inflammation, bleeding is

demanded. The horse should be bled. A purgative combined with an antispasmodic should then be administered, and the following will answer the purpose:—

RECIPE (No. 40).

Drink for Enteritis.

TAKE—Solution of aloes, four ounces ;
Extract of gentian, four ounces ;
Laudanum, two ounces ;
Sulphuric ether, two ounces :
Add a pint of cold water and give.

A drachm of opium, combined with half a drachm of calomel, may afterwards be administered every hour; and, if the pain has not abated, the sulphuric ether may be repeated at the same time as the mercury. The other measures are the same as recommended in peritonitis; namely, back-raking, clysters, counter-irritants to the belly, &c.; but, after enteritis, the food should be given sparingly; and nothing which is of a hard or dry nature placed before the horse for some time.

DYSENTERY—ACUTE DIARRHŒA, OR VIOLENT INFLAMMATION OF THE MUCOUS MEMBRANE OF THE BOWELS.

This is too frequently the consequence of physic; either of bad quality, or given in an over-dose; or administered under circumstances which should have warned the practitioner of the consequent danger of purgation. If physic has not been given, yet the horse may have been ridden or driven far and fast, with nothing but green meat in his belly; or inflammation of the lungs may have quitted its primary

situation, and have attacked the mucous membrane of the intestines. Being inflammation of the internal coat, the numerous vessels which secrete the mucus of the intestinal canal share the irritation; they at the commencement pour out an increased quantity of fluid, and purging generally ensues, but towards the end all secretion ceases, and either purgation ceased, or the intestine having become disorganized, perpetual and foetid stools ensue.

This disease can hardly be confounded with the foregoing. The pulse, although hard in dysentery, is not so much so as in enteritis, nor is it so wiry. The muzzle and extremities are not so cold in the last disorder. The horse suffering dysentery shows that he endures intense pain; he looks anxiously round at his flanks; he is continually shifting his position: he lies down, and immediately rises again; but he never rolls so violently as in enteritis; nor does he kick so desperately; nor is there so much tenderness of the belly. At the same time he is purging instead of exhibiting the obstinate costiveness which too frequently accompanies enteritis.

Thousands of horses are destroyed every year by over-physicking; for should the purging run on to inflammation of the mucous membrane, it can seldom be effectually stopped. The first inquiry should be as to the length of time during which the purging has existed; the degree of pain that the animal has evinced; and the nature and quantity of the discharge. If not more than twenty-four or thirty-six hours have elapsed since the physic began to work; if the dejections are not very foetid, even although

the discharge should be frequent, we may not despair; but we must not be too sanguine in our expectations. There may as yet be more irritation than positive inflammation of the parts; and, while we wish to stop the excessive discharge, we also desire to support the strength; to sheathe the bowels, and calm the excitement. Opium will answer one of these intentions. Plenty of tolerably thick gruel or starch should be horned down; as well as thrown up in the form of injections; and with it, every hour, one ounce of opium should be given. The starch will possibly sheathe the coats of the bowels, which, by the purgation, have been deprived of their protecting mucus; and, the opium also allaying the irritability, perhaps the purging may gradually stop. If, however, eight-and-forty hours have passed, and the discharge continues as abundant as ever; or, although it may have decreased, it is voided with pain, and mingled with much slime; while the mouth is hot; the countenance anxious; the flanks heave; the pulse is much accelerated, and at the same time small, the case is almost hopeless. Bleeding is never safe where mucous membranes are affected; and here, after purgation, it would be absolute murder. A blister may be applied to the whole extent of the abdomen; and a sheep-skin to the loins will do no harm. The chief dependence, however, will be placed in sulphuric ether and laudanum; two ounces of the latter with three of the former being given every quarter of an hour in three quarters of a pint of cold water. If no marked effect should follow upon three or four doses, the like quantities should also be exhibited in the form of injection.

When any foetus is detected, the chloride of zinc, in scruple doses, dissolved in a pint of water, should be given both by the mouth and thrown up the rectum.

If the purging should abate, the medicine should be discontinued; or, if the horse appears to be narcotized, no more should be given than is necessary to keep up this effect. It will be a good symptom if the injections are retained; and, that they may be retained, they ought never to exceed in quantity a quart at a time.

After the purgation ceases, supposing the animal to survive, obstinate constipation generally follows. This will sometimes continue for a week. Let not the proprietor be alarmed or seek to remove it. After some time has elapsed nature will resume her functions; and in the interspace gruel or green meat should constitute the food; but no mashies of bran ought on any account to be given, as these irritate the bowels.

This is the disease which the groom designates "*molten grease*." It must not be confounded with a little spontaneous purging or simple diarrhoea; which is often an effort of nature to cast off something that is injurious to the system; and therefore is best relieved by an oily laxative, which in dysentery would aggravate the disease.

SPASMODIC COLIC.

This is a very frequent disease. If it is timely attended to, little danger appears to accompany it. However, almost every groom has a supposed specific for it, and one that is often successful, but one which in severe cases frequently wastes valuable time. The

chief object is to know the disease when it occurs; not to confound it with inflammation of the bowels, which requires an altogether different treatment. The symptoms by which the one may be distinguished from the other should never be mistaken after one or two cases have been witnessed. In both there is pain; stamping; looking at the flanks; and rolling: but in inflammation of the bowels the pain is constant; in colic there are periods when the horse enjoys a total relief from pain, and turns to the manger to feed. In the first, although the horse stamps violently, he takes great care to touch his belly tenderly: in the second disease he often strikes his belly desperately with his hind feet. In the one, the belly is hot, and pressure on it gives much pain; in the other, there is no heat, and moderate friction evidently affords relief. In inflammation of the bowels, the pulse is, from the beginning, wiry and quick; the mouth is at the commencement hot, and then clammy, or deathly cold; in colic the pulse is not always affected at first, although after a while, it quickens; and the mouth is of its natural temperature until colic merges into some more serious affection. Throughout there are usually some premonitory symptoms—as dulness, loss of appetite, and constipation—belonging to an attack of inflammation; colic comes on suddenly, without any warning. Motion sadly aggravates the pain of inflammation; a horse with colic may become a little easier if he is walked about; though it is always safer to let him have a loose box, and take what exercise he pleases.

The history of the case should also be inquired into.

If the horse, previously in perfect health, has, when heated, had access to cold water; or been exposed to a cold wind; or, if he has been exercised violently on green meat; either colic or inflammation may be the result; but if the symptoms follow a little sluggishness at work, and want of appetite with constipation for a few previous days, it is most probable that inflammation will be present.

Having, therefore, considered the history; and observed the symptoms; and decided that the horse is labouring under an attack of spasmodic colic, the following drink should be given in a pint of ale or cold water:—

RECIPE (No. 41).

Colic Drink.

TAKE—Solution of Cape aloes, six ounces;
Sulphuric ether, one ounce;
Laudanum, two ounces.—Mix.

If in half an hour or an hour relief is not obtained, the draught should be repeated; only the aloes must not be again administered; but their place should be supplied by one drachm of camphor, ground to a fine powder, with a few drops of spirits of wine. The abdomen also should be well rubbed or fomented.

After the second drink has been given without relief, it is often necessary to moderately bleed the horse; not only to reduce the spasm, but to anticipate the inflammation which will probably ensue upon a prolonged attack. After this the drink should be repeated; two drachms of powdered opium may be

given in an injection, and a stimulating embrocation may be rubbed over the belly. It is very rare for an attack of colic to continue longer; but if it should, the rubbing and the drink should be persevered in; or even the ammoniacal blister previously described may be applied to the abdomen.

A horse recovering from a fit of spasmodic colic should have his water a little warmed for several successive days.

IMPACTMENT.

This is generally found only in old horses which have immoderate appetites and weak digestions. It is produced by masses of dung accumulating in the bowels and stopping up the passage. It is distinguished from colic by there being no periods of perfect ease; and from inflammation by the absence of pain on pressure; and by the character of pulse, which will be changed, but not so much affected as in positive enteritis. The disease, however, generally continues for a longer time than does simple colic, and more frequently terminates in inflammation. The object is to relieve the bowels; and large quantities of oil with half a drachm of chloroform to each pint, back-raking, and frequent injections, are employed for this purpose. Bloodletting is also proper; and often immediately will be followed with a free discharge of *fæces*. A drink composed of sulphuric ether and laudanum, of each two ounces, may be administered thrice a day; or even oftener if the symptoms are severe; and the abdomen may likewise be fomented or stimulated.

FLATULENT COLIC.

This species of colic, although essentially different from the spasmodic, both in its nature and treatment, is recognizable from it, even in the early stage of the disease, by its being more continuous and less violent in its symptoms. The one is a spasmodic constriction of the bowels; the other is distention of the bowels from the extrication of gas. There is during spasmodic colic uneasiness; pawing; rolling; with little change in the pulse or the temperature of the extremities; but in flatulent colic the animal is rather uneasy than furious; the distention of the stomach or bowels, or both, after some period, causes an evident enlargement of the abdomen; while, at the same time, the discharge of flatus per anum characterizes the last affection.

The drink for colic (Recipe No. 41, p. 157) should be first administered; but, if this does not give relief in the course of an hour or two, the drink as amended by the addition of camphor should be given; while frictions to the belly and frequent purgative enemata are exhibited. The horse, however, should be left quiet; and not be trotted or galloped under the idea of thereby getting rid of the wind.

Sometimes the disease is very obstinate, and requires repeated changes to be made in the medicine before it will yield. If such prove to be the case, a drachm of carbonate of ammonia may be used instead of the camphor. If no good is done, the ammonia may be exchanged for half the quantity of chloride of zinc; or linseed oil and chloroform may also be

administered: always, however, continuing the laudanum and sulphuric ether, which will in the end generally be successful.

In some cases, however, all our labour is to no purpose. The horse continues to swell; he is blown up as tight as a drum, and his breathing becomes laborious. It will now be imperative to relieve him, or the animal will die; and a mode of treatment has been suggested, founded upon the means used to remove the hoof in cattle, namely, to puncture the cæcum, as the rumen of the cow is sometimes punctured. This might answer in the hands of a skilful veterinary surgeon; but no other person should attempt the operation. It is often performed by the French veterinarians; and has been lately recommended by some Scottish practitioners. This dangerous operation, however, should only be employed as a last resource.

STRANGULATION AND INTROSUSCEPTION OF THE INTESTINES.

When the symptoms of severe spasmodic colic do not readily yield; either inflammation of the bowels is at hand, or strangulation—twisting of the intestines—may have taken place so as to cause an insuperable obstruction to the passage of the fæces. Occasionally, spasmodic action being long continued, one portion of the gut will enter and be confined within a neighbouring portion; and thus an insuperable obstruction will be formed. No good can be done in either case; and we can only guess at what has taken place by the obstinate costiveness of the horse: by the animal ex-

hibiting some symptoms which are not natural to inflammation of the bowels; or by its not exhibiting some symptoms which are characteristic of that disease; to which both strangulation and intorsusception, in their general features, bear so marked a likeness, that without close observation of the symptoms they cannot be distinguished.

ABDOMINAL CALCULI.

In some horses, and particularly in those that work in dusty mills, calculus is by no means unfrequent. A small portion of stone, or of iron is swallowed, and becomes lodged in some part of the intestinal canal; particles of earthy matter gradually surround it, being bound together by the mucous secretion of the part; until the stone attains almost incredible size, having, in extraordinary instances, weighed twenty-five pounds. These have been found after death, up to which period the horse had seemed to enjoy perfect health; at times he might have been off his feed, or have had colicky pains; or he has sometimes been almost incapable of rapid action.

The last attack, however, is invariably protracted; and the symptoms are more violent than is usual in other abdominal diseases. The duration of the disease and the acuteness of the suffering—especially in the early stage, when the horse dashes about and injures himself—together with the fact of his having been, from time to time, affected with colic; alone enables us to guess that calculus is present. The strongest purgatives administered in the largest doses generally

have for a season afforded relief; but the attack assuredly returns, and ultimately destroys the horse.

These calculi are generally found in the colon: but others consisting of hardened fæces termed dung-balls; or composed of the matted hairs of the oat, and called oat-hair balls, are met with in the rectum. Back-raking should, therefore, always be practised in every case of abdominal disease, more especially if the symptoms are at all dubious. Measures calculated to allay the pain, such as the frequent exhibition of drachm doses of powdered aconite root, are likewise called for, but we know of no means by which these deposits can be removed or dissolved, although two drachms of hydrochloric acid mingled with each pail of water may prevent such accumulations from increasing in size.

CHAPTER XXIII.

INFLAMMATION AND OTHER DISEASES OF THE KIDNEYS AND BLADDER.

THE kidneys are actively employed in separating the watery parts of the blood, as well as a peculiar principle, the *urea*; which, if it were suffered to accumulate in the circulation, would prove poisonous. The practitioner is sometimes anxious to remove some of the serum from the vital current; because, by diminishing the natural quantity of blood, he rouses the absorbents to take up certain dropsical effusions in different parts of the frame. Therefore it is that he some-

times gives diuretics; and places reliance upon them in cases of anasarca, or swelled legs.

Experience, however, proves that every organ overworked is subject to disease; and few organs are more overworked and abused in common stable management than the kidneys. If the gland is too much irritated by the improper use of diuretics; or if any kind of food that stimulates the urinary organs be given, one frequent consequence is

PROFUSE STALING.

This is an annoying and a very weakening complaint. The horse affected with it cannot endure much hard work: it indicates weakness of the part, and leads to general debility of the frame. Some persons bleed and physic in this affection; but those measures generally aggravate the symptoms. Others give astringents; and if that line of treatment is adopted, the following ball may be daily administered:—

RECIPE (No. 42).

Catechu, two drachms ;

Opium, a drachm ;

Oak bark, in powder, two drachms :

Make into a ball with treacle.

A more generally successful method, in every case of profuse staling, is to change the food, no matter how good it may appear to be. This is always safe, and frequently it is of every importance. Let hay and oats be obtained from a new quarter; and then let the horse constantly have before him a pail of thin linseed gruel, from which he may drink as much as he pleases; which will usually be a considerable quantity.

This does him no harm ; but, on the contrary, soothes the irritability. As for medicine; iodine is here the best that we are acquainted with, and it may be given in the form recommended under the head of hydrothorax (page 117).

After the discharge has abated, a few tonics ; very gentle work ; and some slight nursing, will usually restore the horse to its former health : but during the attack the animal should remain an inmate of the stable.

DIFFICULTY OF STALING.

There is sometimes another and an opposite consequence of bad food ; or the affection may be also caused by tampering with diuretic medicines ; it is more dangerous than profuse staling. The horse strains to void his urine ; the effort is evidently attended with pain : and, after all, he is only able to evacuate a small quantity. The groom, little thinking that this is owing to the muscle of the urethra being constricted ; either from spasm or sympathy with the surrounding substances ; gives a diuretic ball to overcome the stoppage. He often does overcome it : for he determines a quantity of fluid to the part, which no obstacle can resist ; but he does this at the hazard of producing inflammation, or causing rupture of the bladder.

In mild cases, gentle measures will be all that is required. In other instances, however, the symptoms will be violent and alarming ; the paroxysms being most severe, and the brain even becoming affected. The horse should at once have the catheter passed ; but no violence should be used if the spasm resist its entrance. The hand should be introduced

into the rectum, and pressure made upon the distended bladder; which will be readily felt. Should the agony be great, injections of not more in quantity than a quart each; containing three ounces of sulphuric ether, and two ounces of laudanum, may be employed every hour until ease is procured. The like quantities of the active medicines diluted in the same amount of water should also be administered at the period stated by the mouth. But during the time when all this is being done, gentle attempts should be made at intervals to pass the catheter; and to press out the urine by means of the hand within the rectum.

If the treatment recommended be pursued and persevered in, this disease, in nearly every instance, is ultimately conquered. It bears some resemblance to gripes; but is distinguished from that disorder by the straddling of the hind legs, roached back, and constant ineffectual efforts to urinate.

INFLAMMATION OF THE KIDNEYS.

This is a very serious disorder; and not unfrequently a fatal one. Inflammation of the kidneys can scarcely be mistaken by an observant practitioner. There is considerable fever; even more than when other organs of greater bulk are affected. This is clearly indicated by the heat of the mouth; the heaving of the flanks; and the acceleration of the pulse. The feeling of very acute pain is plainly shown by the frequent stedfast gaze at the affected part; that part being pointed out by the direction of the muzzle to the loins more than to the belly. There is disinclination to move; because the kidneys being closely related to some of the muscles of the loins, the least motion will

give intense pain. In order that there shall be as little stress as possible upon these muscles, the back is arched or roached; and the hind legs are straddled very curiously and widely apart. The disinclination to move, or rather the inability to move, without agony, assumes, in bad cases, the appearance of palsy of the hinder extremities. It seems to shift from side to side; and from leg to leg; in proportion as the inflammation moves from one kidney to the other. If the hand is now placed on the loins, an unnatural warmth is felt; and the poor horse shrinks, trembles, and crouches under the slightest pressure.

The urine, which at the very beginning was voided more frequently; and with perhaps greater difficulty than usual as the disease proceeds, escapes in smaller and smaller quantities. It becomes high-coloured, perhaps bloody. It diminishes by degrees; until only a few drops are voided at a time; and at length it ceases altogether to appear; yet the horse may strain; because the bladder is sympathetically affected; yet every strain is accompanied by increasing agony.

The mere difficulty of staling, however, and its gradual ceasing, may be referable to another cause, namely, spasm of the urethra. It is therefore necessary to settle that point before any treatment is commenced. The hand well oiled should be introduced into the rectum. If there is inflammation of the kidney, the mere approximation towards the organs will communicate a sensation of heat and call forth the most piteous symptoms of supplicating distress. But, if it is spasm of the urethra, the distended bladder cannot possibly be mistaken.

Inflammation of the kidneys, however, is the sub-

ject now under consideration. The case must not be played with. The secretion of the urine is one that cannot be suspended a little while without manifest danger or certain death. The patient must be bled until evident relief is afforded.

To this must succeed physic; but it must be physic which will not irritate the neighbouring parts. Aloes, because this drug contains resin, ought not to be given, and even the solution of this drug is not quite safe. A pint of linseed oil, in which are mixed ten drops of croton oil, guarded with half a drachm of chloroform, may be administered; and half the dose repeated every eight hours until purging is produced. Plentiful injections of warm soap and water should be thrown up; for they will answer a double purpose;—they will assist the physic, and act as useful fomentations in the immediate neighbourhood of the inflamed part.

To these, as in other cases, will succeed counter-irritation. The part should be frequently fomented with hot water, or, what is far better, the hair of the loins should be made wet with the tincture of croton and immediately covered over with a fresh sheep-skin. The majority of the blisters, in common use, have a diuretic as well as a vesicatory effect; therefore these must not be resorted to. Turpentine and cantharides must be avoided as pregnant with mischief. The mustard poultice, when properly made, will be very effectual; and it has no stimulating effect on the urinary organs. It will also be assisted if a sheep-skin is also placed upon the loins.

While the inflammation is high, little food, and that

of the mildest nature, should be given. The patient may have a bran mash before him, and a bucket of linseed tea within his reach. Most medicines should likewise be avoided until the physic has ceased to operate; and the only drug that can be given with safety is the white hellebore.

RECIPE (No. 43).

Hellebore Ball in Inflammation of the Kidneys, or as a Sedative generally.

TAKE—Fresh white hellebore root, powdered, half a drachm;
Linseed meal, four drachms:
Make into a ball with treacle.

One of these may be given morning, noon, and night while the inflammation is acute; but they must be suspended when the disease begins to subside. The balls ought also to be discontinued should saliva flow from the mouth; or should the horse hang his head with any appearance of stupidity or unconsciousness; such indications denote the system to be under the influence of the medicine, and are warnings to withhold its administration. The bowels should, at the same time, be kept in a rather softened state by means of small doses of linseed oil.

This is a disease which often leaves mischief behind it. There may for a long time be a tendency in the affection to return, and perhaps there may also exist an incapacity for very hard work. The strictest attention should be paid to the food. Green meat will be useful. A ramble in the paddock for an hour or two, when the weather is fine, is always desirable

during inflammation of the kidneys. The hay and corn should be carefully examined; and no diuretic medicine should even be brought into the stable. If the horse is worked at all hours, and in all weathers, he should have his loins protected by a leathern flap; if he is a saddle-horse, the rain should not be suffered to drip on him as he stands waiting for his rider. After a very severe attack of this disease, should the horse not gain the full and free use of his hind limbs, *a charge* over his loins will be of very great service.

RECIPE (No. 44).

A Charge for the Loins.

TAKE—Pitch, three pounds ;

Tar, one pound ;

Bees'-wax, half a pound :

Mix them together, and, when they are cool enough to be conveniently applied, spread the charge thickly over the loins, and scatter some flocks of short tow over it before it gets quite cold and firm.

INFLAMMATION OF THE BLADDER.

Inflammation of the mucous membrane, lining the bladder, is sometimes coexistent with inflammation of the kidneys. The nature of the urine is changed by the condition of the vessel into which it falls, but still more by sympathy with the disease of the glands which secrete it. It is acrid, and irritates the coat of the bladder. Stimulating food; some poisonous herbage; or the presence of any strange body, such as a

stone, are occasional causes of this disease. It is recognizable by the frequency of the staling; by the mingling of mucus, or pus, or blood with the urine; by the additional heat which is felt when the hand, introduced into the rectum, rests upon the bladder, which will be small, hard, and empty; and also by the acute pain which pressure to the flank occasions, as evinced by the actions of the animal.

Little can be done in such a case. Bleeding and mild physicking would perhaps be indicated, with plenty of linseed tea: and some relief might be obtained by the injection of linseed tea, in which sedatives, as opium or belladonna, are dissolved, into the bladder, which may be accomplished by means of a horse catheter invented by the late Mr. Read. The aloes, if any be given, must be good, and not in too great quantity; for the lower intestines generally sympathize considerably with the irritable state of the bladder; and if there is not much purging there may be dangerous inflammation of the bowels.

A slighter degree of inflammation, properly described as "irritability of the bladder," is frequently observed. The urine dribbles away in small quantities, and is occasionally mingled with blood, the consequence of some previous disease of the bladder, or, perhaps, of some derangement of the digestive organs. This is suffered to continue and increase until the horse loses condition; the appetite is impaired, and the animal becomes unfitted for work.

Small quantities of aperient medicine, with vegetable tonics, will be serviceable in this case.

RECIPE (No. 45).

Drink for Irritable Bladder.

TAKE—Linseed oil, six ounces, and beat it up with the yolk of an egg; then add chloroform, one drachm;

Extract of gentian, two drachms; with

Opium and Uva Ursi, of each one drachm.

Give this every third morning.

GRAVEL AND STONE IN THE BLADDER.

These are far from being unusual complaints. It is very common to see a horse discharge a great deal of gravel with his urine. Several pounds have been evacuated in the course of a few months.

The symptoms of stone in the bladder are well marked. In the first place the urine is thick; loaded with mucus or pus; or it may contain blood. This would lead attention to the urinary organs; but, in addition, is the manner of staling. The horse discharges the fluid freely; but the current stops suddenly; and after it has done so, the animal continues straining violently, though nothing passes from him.

The nature of the complaint being suspected, it is very easily put to the test; for, as was observed when the diseases of the bladder were described, that viscus is readily felt from the rectum; the presence and size of the stone may be thus ascertained.

Nothing but the removal of the stone can give relief. To accomplish this there are two methods, either of which the proprietor may adopt. The urinary calculi in the horse are composed mostly of the carbonate of lime or chalk. This substance is readily dissolved by muriatic acid; and as the mineral acids in their passage through the body undergo little or no change, if

this agent be given by the mouth, it will reach the bladder in a state fit to act upon the calculus we wish to remove. It will dissolve the calculus, or at all events prevent its increase, the solid matter in a state of solution being conveyed away with the urine. A drachm of the acid may be mixed with every gallon of water which the horse drinks. This process is not satisfactory, but in certain cases, the owner may, rather than submit to delay, prefer hazarding an operation. That will settle the business more quickly, and, to the horse, is not so dangerous as to the human subject. Nevertheless, before an operation is resorted to, it is only prudent to regard it in conjunction with the animal upon which it is to be performed; and the circumstances to be taken into consideration, with regard to the performance of that operation, are the age, and health, the value of the horse, and the size of the stone.

The operation being resolved on, the horse should be thrown, and a whalebone staff, with a groove at the end of it, passed up the penis; until its point can be felt about an inch and a half below the anus. The staff being held firm by an assistant, the operator makes an incision directly upon the groove, and into the urethra, where it winds round the arch of the ischium: into this he introduces a dilator (which is an instrument that can be made to expand), and passing it into the bladder, he causes its enlargement; and thus widens the mouth or neck of that organ, until it will admit of the passage of the stone, the size of which has already been ascertained through the rectum. The forceps are then introduced into the blad-

der, and the stone is seized; the right hand being in the rectum will materially assist in accomplishing this. The stone having been firmly grasped, is attempted to be withdrawn with a gentle movement of the forceps, from side to side; in order to surmount any difficulty in the passage, and to prevent contusion or laceration. After the stone is once grasped, the operator must be careful not to lose hold of it until it is extracted.

In a great many cases, perhaps in the majority of them, the forceps will be unnecessary; as, the fingers of the left hand being carried through the external wound into the bladder, the right hand introduced within the rectum will not only direct the stone to them, but assist in forcing it through the orifice. No stitches are passed through the edges of the wound. The urine at first flows almost wholly through the opening; but the orifice, which should be bathed thrice daily with the weaker solution of the chloride of zinc, will gradually close; for, at the expiration of about a month, it will usually be healed, and the whole of the urine be discharged through the urethra.

In the foregoing description the operation has been considered as it would be practised upon the horse; but in the mare it would be much more simple. No staff would in the female be required, and no cutting need be resorted to. The dilator can be at once introduced, and that invented by Mr. Simonds is to be preferred for the mare. After it has sufficiently expanded the short urethra of the mare, the rest of the operation is proceeded with in the same way as has been already pointed out.

CHAPTER XXIV.

CASTRATION, AND THE DISEASES OF THE GENERATIVE
ORGANS.

CUSTOM, and indeed the pleasant and safe use of the horse, require that the colt should usually be gelded. The operation of

CASTRATION

is performed with greater safety before the foal is weaned; but, as the glands commonly have not descended at this age, it can rarely be accomplished so early. The form of the neck and shoulders is materially affected by the length of time the colt remains perfect; wherefore the carriage-horse, and the horse of heavy draught, should never be castrated before he is a twelvemonth old. If the fore quarters are then large and muscular, the sooner the colt undergoes the operation the better; if they are weak and thin, he should be allowed some further time. Many dealers do not castrate until the colt is two years old; and, in particular cases, the operation is even delayed till the animal has attained his fourth year.

A great many new methods of castration have been lately promulgated; and each has had its defenders. As a general rule none of these are very dangerous; and it is difficult to decide which is, in every respect, the best. Place and season seem to influence the result. For a long period one plan may be practised with success; but all at once, without any reason being obvious, the deaths by the method may be frequent; and, perhaps, the system which previously

was found injurious will then answer admirably. Before a colt is cast for castration, it should be carefully inspected. Any symptom of disease; or any appearance even of dulness, should be removed before the operation is undertaken. Upon no account ought the colt labouring under, or breeding strangles, to be operated upon. If the animal be in perfect health, and the weather be also favourable; a few bran mashes and a dose of physic will make the operation more safe; but in very many instances it is performed without any preparation, and nevertheless the colt steadily progresses. It is well also to know that, though precautionary measures lessen the dangers, nothing that man can do will possibly render the operation entirely free from hazard.

Wooden clams, with and without caustic, with the testicle covered and uncovered, are by some practitioners strongly recommended; but the old method with the knife and iron is, perhaps, most generally practised; and, with common care, there is comparative little danger about the operation.

A collar of the common girthing web is to be placed, not too tightly, about the neck of the colt; and he is then to be thrown on the left side. The croup is to be raised a little; and the right leg drawn up as far as it can be towards the collar. Some persons, however, prefer to draw up both legs, and turn the colt on his back.

The operator should then place himself behind, or somewhat to the left of the patient, according to the manner in which he has been thrown; and begin to examine the scrotum, more accurately than he was before enabled to do. This is necessary in order to

ascertain the situation of the testicles; and whether they have so thoroughly come down as to enable him to grasp them firmly. It is not always that he can do so. If the operator, however, anticipates difficulty in retaining them in his grasp, let him pull them down as low as he can, by steadily and gradually applying force, but without violence.

It will be, on the whole, more convenient for the operator to begin with the left testicle first; the man at the head being on the alert, and the twitch having been put on, the operator grasps the gland, pushing it down to the bottom of the bag; the testicle thus making the scrotum tight and smooth over. Then he, with one incision from before, backwards, and along the whole extent of the scrotum, cuts through the integument; the dartos muscle; and the tunica vaginalis: when the testicle slips out.

The operator must now shift his hand downwards, and seize the testicle, holding it steadily; not drawing it out, but humouring the struggles of the animal; while the man at the head is steady, and the twitch is tightened.

The struggles of the animal, which will probably be great at this time, having somewhat ceased; the operator draws the testicle down a little farther, and places the clamps upon the cord; having wound a little tow about them, that they may press more equally and securely upon the cord, and perhaps deaden pain, as well as prevent bleeding. The vas deferens should be divided with the knife; as by so doing the colt will be saved much unnecessary pain. The point at which the cord should be divided having been settled;

leaving it neither so long as to protrude from the scrotum, nor so short as to be laid hold of with considerable difficulty : let all be steady.

The cord is now to be divided. It would appear to be the most surgical way to do this with the knife ; and afterwards to sear the end of the cord, in order to prevent subsequent hæmorrhage ; but hæmorrhage will sometimes occur afterwards, to the great trouble and mortification of the operator. A better way is, to draw a blunt firing-iron, which must not be too hot, repeatedly across the cord, until it is divided ; the vessels will thus be in some measure torn asunder, and quite as much stimulated by the heat as burned by the fire ; and much bleeding will rarely ensue. The clams should therefore be a little loosened : that the operator may see whether the bleeding is effectually stopped. If there is oozing of blood from the end of the cord, it is much more prudent to again apply the firing-iron, which should be only at a dull black heat ; than to run the risk of the vessels being gradually forced open by the pressure of the blood. There is no point, however, about which the surgeon should be more anxious, than to apply the iron with just sufficient severity to accomplish the intended purpose, and no more ; for it may be suspected that many of the colts which are lost in castration die from inflammation produced by the needlessly severe application of the cautery.

The same mode of proceeding being adopted with regard to the other testicle, the operation is at an end, except the mere cleansing of the part with cold water. The colt should be turned into a paddock ; for the

little exercise, which he can then take, will assist the escape of any pus, or other fluid, from the bag, and will prevent both swelling and inflammation; but a full allowance of oats and beans should be given. He should even be made to walk about three or four times daily; some digestive ointment having been smeared over the wound to keep off the flies; if the operation should have been performed during the heat of summer.

Little attention is afterwards necessary. There will sometimes be a considerable degree of swelling; this perhaps extending beyond the scrotum, and along the belly; but if, on the third day, there is a discharge of healthy pus, there will be no cause for fear; as the swelling will gradually subside; if, however, there is no discharge of pus; whether there be or be not any swelling, it will be prudent to open the wounds a little with the fingers, in order that the pus which is pent up in the scrotum may escape. Should much fever ensue after castration, and the colt begin to be evidently ill, the peritoneum is probably inflamed; for that membrane in the horse is continuous with the internal covering of the scrotum. Warm fomentations to the parts, with such measures as have been advised under the head of peritonitis, should be resorted to. Very great swelling of the scrotum, evidently containing fluid, is best treated with slight scarifications and fomentations.

A mode of castration by means of *the clams* has been lately introduced; and somewhat extensively practised. A dry branch of elder, or of some other wood, is selected; about an inch in diameter, and five

or six inches long. This is sawn or otherwise cut lengthwise through the middle; and the internal surface of each thus exposed is smoothed; and, by removing the pith (or, otherwise, if a simple piece of wood be used), a groove along the entire length is made. About half an inch from either end, a niche is cut sufficiently deep to hold a strong waxed string; by means of which they are tied together at one end, their flat surfaces being opposed to each other.

Into the groove is put a paste of a caustic nature; as, one part of sulphate of copper with two parts of wheaten flour; or one part of nitrate of silver, or of the bichloride of mercury, with four of flour, moistened with a little water. There are, however, many forms for making these pastes; each practitioner generally having one to which he attaches much importance; but, so it be of a caustic character, it does not signify of what it may be composed. After all it is doubtful whether the caustic is of any material service; for the clams applied without it have been found to answer; though, perhaps, the after-consequences have, in a greater number of cases, been more severe. There is, however, no proof of that fact, but it is the general belief; and certainly the caustic has never been thought to do harm. It should, therefore, be used; but at the same time it is well to know it is not absolutely necessary. The clams act by pressing upon or strangulating the cord; which is placed between them, and the free ends are then tied as firmly and closely together as possible. The current of blood is thus cut off from the part below; which consequently dies, and sloughs away. The full action of the clams is

obtained in twenty-four hours; but sometimes they are left on two or three days. But the shorter period is sufficient. At the end of the time the practitioner with a knife divides the strings at one end; and either the clams instantly fall off, or they are allowed to remain till they do so.

There are two ways of applying these clams; the operation, according as they are used, being called the covered and the uncovered. For the covered, which, in certain cases, as when scrotal hernia exists, is the preferable way, the bag is grasped by the hand; an incision is made through the skin; and the dartos muscle; taking care not to divide the tunica vaginalis, which is the lining membrane of the scrotum. The outer coverings, the skin and dartos, are then carefully dissected from the inner membrane; the sac of which is preserved entire. Then, care being taken that the tunica vaginalis contains nothing but the cord and testicle, the clam is placed over it; and so closely and firmly tied as completely to stop the circulation of the blood. In the other, or uncovered operation; before the application of the clams, the tunica vaginalis, as well as the skin and the dartos, is cut through, and the cord pulled gently down. The clams being sufficiently pressed together and secured; the testicle is usually cut off, in order that the weight of the gland may be removed. The principal art in the performance of this operation is to make the clams press equally and sufficiently firm.

This mode of castration is almost uniformly adopted in France; but many English practitioners adhere to the old practice of the knife and iron. Another mode

of castration has been attempted with occasional success; which, from the comparative little pain which it inflicts on the animal, is well worthy of some further trial. The horse is secured, and an incision made through the scrotum. The vas deferens and the cellular membrane above the epididymis are then sundered; and the testicle is left attached by the spermatic artery and vein alone. A pair of forceps constructed for the purpose, and called the "torsion forceps," are then applied to the spermatic artery, three inches from the epididymis; and the testicle is cut off. The forceps being then turned about ten or even twenty times, the cord is suffered to retract as far as it will; the forceps which have been firmly held that a clot of blood may be formed, are then opened; and the operation is at an end. This mode of proceeding, however, experience has shown to be not so safe as it appears to be humane. The twisted artery has given way; and fatal hæmorrhage has ensued.

SWELLING OF THE SHEATH OF THE PENIS AND AMPUTATION OF THE PENIS.

Sometimes at the close of severe illness the sheath of the penis will suddenly become enlarged, or œdematous. The treatment will depend on the circumstances of the case; but generally speaking, a more liberal diet, a few tonic balls, with gentle exercise, will effect the cure. At other times, a swelling, not so large, but hard and painful, will proceed from the accumulation of oily dirty matter within the

sheath. The sheath of every horse should be occasionally examined, and cleaned out with soap and water. The filth being long suffered to remain unnoticed will sometimes cause excoriations and ulcers; producing such a mass of disease on the glans penis as renders it necessary to amputate the member. Whenever any sore is detected within the prepuce the part should be repeatedly washed with a dilute solution of the chloride of zinc; which will allay any irritability; remove any fœtor; and speedily heal the part. Masses of fungoid substance, weighing three or four pounds, will, in neglected cases, sometimes cover the glans. It is useless to attempt to remove a growth like this with the knife; for it will in all probability very soon sprout again. Amputation of the penis is the only remedy; and this is an operation neither difficult nor dangerous.

The penis should be drawn out as far as possible; and then cut through at one or two incisions; as far behind the diseased part as may be deemed necessary. The remaining portion of the penis will be retracted within the sheath. Little hæmorrhage will follow; excepting that a slight bleeding may sometimes be perceived for a few days during the act of passing urine. The orifice of the urethra is kept sufficiently open by the gush of the fluid; and it is very seldom that any unpleasant circumstance occurs.

WARTS.

A collection of these growths on the glans of the penis will sometimes make it impossible to retract that member when protruded, and render the opera-

tion last described absolutely necessary. They are frequently found upon the sheath of the penis, and sometimes also extend along the groin. In a few cases they are located upon the eyelids; the nostrils or the muzzle. The most effectual way of destroying them is by cutting them off with a sharp pair of scissors. The ligature is a cruel, tedious, and uncertain mode of getting rid of them. To cut them off is the best manner of removing them; and causes not only less pain, but leaves less blemish. The bleeding which will follow is not of much consequence; a little astringent wash will readily stop it. But frequently the warts will reappear, in whatever manner they may have been removed; some horses having a constitutional predisposition to throw out this species of tumour.

INVERSION OF THE WOMB.

This is a very uncommon case; and is the consequence of violent throes in parturition. The protruded mass will sometimes reach even to the ground. If the mare has not been perfectly exhausted by the length and violence of her labour; if a skilful practitioner be at hand before the uterus is excoriated, there always is considerable probability of the animal's life being saved. Assistants must support the protruded mass by means of a strong moist cloth; while, with his arm bare to the shoulder, and well covered with oil, the surgeon, placing his closed hand against the fundus of the womb, endeavours to force it gradually back again into the vagina. After working hard, for a long time, he may succeed: but he has

to keep the parts in their situation: for the throes are apt to return under the name of after-pains; and the womb will be propelled out again. There are two methods by means of which this is attempted to be accomplished.

The first, and one which never ought to be resorted to, is, to pass strong stitches through the lips of the vulva; but the after-pains may return so strongly, and the violence of the throes may be so increased by the irritation of the stitches, that the fastenings may give way, and the womb be driven forth once more.

A more successful way is to employ a proper harness made for these occasions; or by the exercise of a little ingenuity to adapt such as the stable may contain to the purpose—the object being to fasten a compress over, or, better still, to retain straps before the vulva; so as to prevent any thing being ejected. Before the harness is applied, cold water should be freely thrown into the womb, and suffered to flow out again. This is readily accomplished by means of the injecting pipe. The operation should be continued until the mare showing symptoms of pain, gives notice that the uterus has been excited to contract; for, when that has taken place, it will afterwards be retained. The harness should then be fixed; and the animal treated according to circumstances. In the generality of these cases the mare will be exhausted, and stimulants will be needed in the first instance: but they must not be too powerful or be continued too long, as there is danger of inflammation starting up. The most speedy in its effects is

one ounce each of sulphuric ether and of laudanum, blended with a pint of cold water, and followed by a wholesome meal of bruised and scalded oats and beans with a pailful of smooth, well-made gruel.

The probability of ultimate success, however, must in a great measure depend on the practitioner being called in early and setting to work immediately.

INVERSION OF THE BLADDER.

In some rare cases the pains have been so strong as to cause protrusion of the bladder; a circumstance that might be deemed almost impossible. The inverted bladder has been mistaken either for the uterus itself, or for a polypus in the vagina. The hand passed into the passage will soon distinguish it from the first by finding its connexions; and, as the bladder is generally inverted before parturition is accomplished, that fact alone ought to prevent its being confounded with the womb. A polypus is of a shining vascular appearance; its contents quite fill the interior, rendering the substance bulky, and its covering tense. The difference is therefore great; for the bladder when inverted is characterized by many peculiarities. If traced into the vagina, it will be found attached to the bottom of, and only a little way up, the passage. Its inner membrane is also shown when the viscus is turned inside out or inverted; this is of a mucous nature, soft and flocculent, or villous. On observation the urine will be seen to drop from its surface;

and, when handling it, it will feel like a wet and empty bag.

All ingenuity must be exerted to return it as speedily as possible. The mode of proceeding is similar to the replacement of the womb. Cold water, to every quart of which an ounce of the tincture of galls has been added, may be injected until the returned bladder has contracted. But, if it is again and again rejected, the delivery should be proceeded with; after which the efforts may be renewed; and whenever it is replaced, cold water should be freely pumped into it, allowing the stream to flow back until excitation of the muscular portion of the organ has been produced.

If, however, the bladder cannot be replaced; the mare will ever after be subject to incontinence of urine; which will dribble constantly down the thighs, and render the animal an offensive spectacle. The bladder in these cases has sometimes been cut off. Part of the unsightliness has thus been got rid of; but the urine still drained continuously down the legs. Whenever this operation is resorted to, a ligature should be employed; care being taken that it does not enclose the ureters; but perhaps it would be more humane to have the animal destroyed.

POLYPUS IN THE VAGINA.

This also is not of frequent occurrence; but it has been found, and of immense size. Its removal must be attempted by a ligature; attached as nearly to the root of the pedicle as possible. This ligature should be tightened daily; and in the course of three or four

days the pedicle will generally be cut through; and the tumour will drop off.

Some have attempted to remove the polypus by means of the knife. The objection to this is the bleeding which will often follow, especially if the tumour is large; but, if the ligature is used, although the pedicle is thick and not readily divided; the polypus may be safely taken off by the knife about an inch from the ligature. The pressure will close the vessels, and no hæmorrhage will take place; or if any should ensue, the tightening of the ligature will command it. The ligature may, however, be objected to; and a more speedy mode of proceeding desired. Then, let the practitioner firmly grasp the polypus with a pair of forceps, made for the purpose; and twist it round and round. This twisting may be continued until the pedicle gives way; or the rupture may be anticipated by the knife. Of these two methods, the use of the knife is to be preferred: because we cannot make certain of the tumour being torn off above the twisted pedicle; and if it be not, fearful hæmorrhage is likely to ensue; and because the knife abbreviates the operation, and cuts short the sufferings of the animal.

CHAPTER XXV.

OPERATIONS ON THE TAIL—DOCKING.

FASHION and convenience formerly determined that the tail of the horse should be shortened. The length

of the portion removed depended upon the caprice of the owner; or upon that of the operator. Many breeders docked the colt a few days after it was born; and they acted with judgment in selecting so early a time; for the little animal is more manageable; the hæmorrhage is less; the pain is evidently not so great; and inflammation at this early period very rarely occurs. The operation, however, is subject to the objection that the young animal is by it deprived of that weapon, which nature furnishes for the purpose of keeping away flies.

The length of the tail being determined on, the operator searches for the nearest joint above or below the place indicated. The hair which grew round the joint is cut off; and that which was growing above the joint, turned up and confined by a string. The side line is next put on, and the twitch tightened; then availing himself of the partition between the stalls, or in any other convenient shelter, the tail was cut off at one blow; either by the instrument made for the purpose, or with a mallet and the carving-knife.

The gush of blood was considerable. It would rarely happen that any danger ensued if the tail were left to bleed; but, as the proprietor might be a little alarmed at the quantity of blood lost; it was usual barbarously to stop the hæmorrhage by means of a circular piece of heated iron affixed to a handle, and with a hole in the centre of it.

Should the iron come in contact with the bone, and sear it with any severity, exfoliation must take place; or even some danger was incurred of the bone sloughing out so far as the next joint.

In a very few cases, however, the bleeding was troublesome: then a large pledget of tow, dipped in the following styptic wash, was placed upon the stump; and using some of the long hair of the tail instead of strings, these were tied so as to retain the application firmly in its situation. After twenty-four hours the hairs may be loosened; but the tow should not be touched—it should be suffered to drop off.

RECIPE (No. 46).

Styptic Wash.

TAKE—Ergot of rye, one ounce;

Make a tincture of it, by adding twice the quantity of turpentine. Mix this with two ounces of the tincture of galls. Bottle for use.

This bleeding having been arrested, no other treatment is required in the majority of cases; and the horse will do much better at work than standing idle in the stable. This, however, was a very foolish and cruel practice. It was frequently followed by lock-jaw. It was supposed to amend the appearance of the animal; but no cruelty can make a bad form a good one. The horse's tail was shortened; but, as regards quality, he still remained such as nature made him.

NICKING.

Docking was a practice formerly fashionable; now happily abandoned. Nicking, however, was a filthy operation, and had nothing to plead in its excuse but the supposed better carriage of the tail which by the barbarity was produced. A horse, nevertheless, with his tail always on the cock, was at length perceived to

be a rather ridiculous object; and the practice has been abandoned: for nothing man was able to perform, could change the position of the extremity; or render that, which nature had formed badly, of a good shape.

CHAPTER XXVI.

DISEASES OF THE SKIN:—WANT OF CONDITION—
HIDE-BOUND—SURFEIT—MANGE—MOULTING.

WANT OF CONDITION.

THE connexion between the skin and the healthy state of the horse generally is much closer than horse-men seem at all times to imagine. A soft, loose, mellow coat, easily raised from the muscular substance beneath, is considered in cattle indicative of a disposition to thrive; and in horses such a state of the integument is proof of condition: but the connexion between these things and the stomach is too much overlooked. Condition in the hackney, the hunter, the race-horse, or the common cart-horse, are very different things; but they all insist upon such a state of skin as has just been mentioned.

The skin is pierced by innumerable pores; through which exudes an unctuous matter, that gives a peculiar softness to the healthy skin. If there is any peculiar mismanagement in the feeding; if, without any care bestowed upon such a subject, the horse is removed from the straw-yard to the full allowance

of the stable; if the grooming, the clothing, or the exercise are neglected, or improperly managed; the evil effect is speedily shown by the want of elasticity in the skin, and the accumulation of scurfy matter upon it.

The treatment of want of condition will somewhat vary with the cause of it. Should the horse be very plethoric, or in high working condition, a mild dose of physic may be required. From six to eight drachms of the physic mass (Recipe No. 1, p. 26) should be given. A second or third dose at proper intervals may follow, if the bowels be much confined; but otherwise, an alterative ball (Recipe No. 4, p. 36), given on eight or ten successive nights; with proper attention to clothing, temperature, exercise, and, above all, a gradually increased quantity of good food, will be every thing required.

HIDE-BOUND.

This is not only a suspended secretion of the oily matter intended to keep the skin supple, but also feverish excitement of the contractile substance of the skin itself; and, in consequence, not only does the skin feel harsh, but it is very difficult to raise it from the muscles below. From the tightness of the covering, the horse with hide-bound has a peculiar tucked-up appearance. It is a state of the skin produced by a diseased state of the digestive organs generally.

A few tonic balls, together with a judicious allowance of oats, beans, mash, green food, and especially carrots; good grooming, and regular exercise, will be the most effectual remedies for hide-bound.

SURFEIT.

This consists of lumps which appear on the skin of the horse, oftener in the spring than at any other season. They are sometimes scattered all over the animal; at other times they are thicker upon his neck and fore parts; or sometimes they are seen on the loins or quarters alone. Occasionally they are attended by a great itching; but in other cases they do not seem to inconvenience the animal. They usually appear with little or no warning, excepting a very slight listlessness; and they not unfrequently go away as suddenly as they came. This is particularly the case when they seem to run in lines; and have an appearance very similar to the wheals from a whip. Sometimes, however, the eruption assumes the form of a pustule which breaks, and the viscid fluid that it contains clings about the roots of the hair: the hair comes off, leaving a bare place so far as the pustule extended. The hair in process of time grows upon these spots, and there remains little trace of what has happened; but in some instances, when the pustules have been numerous and large, surfeit degenerates into mange of a virulent character.

The term *surfeit* seems to refer the eruption of the skin to indigestion. There is no doubt that violent indigestion will produce in most animals inflammation and pustular eruption on the skin. Surfeit has been traced to kiln-burnt oats; to mow-burnt hay; or to poisonous plants: but oftener it has followed the application of some direct stimulant to the skin; as exposure to cold when the horse was hot, especially in

the moulting season. Whatever shape the surfeit may assume, the complaint is evidently caused by the obstructed pores of the skin.

It would seem to be a curious circumstance that physic rarely does immediate good in this affection, and sometimes is decidedly injurious; but the explanation of this circumstance must be referred to the connexion between the skin and the stomach. It explains why a purgative, which for a while deranges the stomach and bowels, also aggravates the skin eruption. The alterative medicine (Recipe No. 4, p. 36) will be highly useful here; and the disease will generally yield to it, without the inconvenience produced by physic. The evening will be the best time for the administration of these alteratives; and if the animal be warmed by an extra rug during the night, that will cause the antimony and sulphur to act beneficially upon the skin. Strict attention should always be paid to the clothing of the horse while he is taking this medicine.

MANGE.

This filthy disease is produced by various causes. Ill-treated or inveterate surfeit will occasionally assume the character of mange. A sudden lowering of diet may sometimes produce an eruption on the skin, which speedily degenerates into mange. Poverty and neglect are yet more frequent causes. Diseases of the digestive organs will lay the foundation for affections of the skin; for it is easy to imagine that such deprivation as will debilitate the frame may affect the surface of the body. There are in these

days very few who are so devoid of feeling, as to turn their horses out in the winter; when the atmosphere is bleak and the food scanty. Horses treated so inhumanly come up starved and unfit for work; and the neglect will often have laid the foundation of a violent mangy affection.

Contagion is, however, the chief source of mange. There is no disease, not excepting glanders itself, which is more quickly caught. If it once appears in a stable, in a straw-yard, or on a common, scarcely a horse will escape contamination.

When there is considerable redness on any part; when, as the inflammation subsides, the skin is left dry, harsh, and somewhat scurfy, having the hair thinned, the integument thickened and corrugated, this is most assuredly mange. The bare spots, which accompany surfeit, are produced by the hardening of the matter discharged around the roots of the hair, causing it to fall off; while the coat around the denuded place is perfectly natural, although the skin may not be so smooth as in health, from the attendant want of condition. Mange, on the contrary, produces, especially about the extremities and the hind legs, a loss of hair; even where there is no eruption. A looseness of the hair, particularly at the edge of the mane, is a prevalent symptom of mange. If to these circumstances are added an almost insupportable itching; with hide-bound; sore places and scabs here and there; a tucked-up belly; a staring coat; and an appearance of poverty, the case can rarely be mistaken.

The treatment of mange is sufficiently plain.

Bleeding is never required and never safe. The diseased state of the skin might retard the healing of the puncture; or the itchiness might occasion the pin to be rubbed out and the orifice re-opened. Moreover it argues great folly to bleed for a disorder of debility.

Physic, in drachm or two drachm doses may be administered; unless the animal is poor in condition, and then tonics should be given.

After this it will be desirable to give the following alterative, in order to charge the system with sulphur.

RECIPE (No. 47).

Flowers of sulphur, half an ounce;

Black antimony, one drachm:

Mix and give once a day in the food for ten days or a fortnight.

Medicine, however, will only assist in the cure. Mange is a local disease, and must be treated locally. Sulphur, mercury, and oil of juniper are the agents which will have most efficacy here. The following ointment should first be tried.

RECIPE (No. 48).

Ointment for Mange.

TAKE—Flowers of sulphur, eight ounces;

Common turpentine, two ounces;

Strong mercurial ointment, two ounces;

Oil of juniper, four ounces;

Lard, one pound:

First rub down the sulphur with a fourth part of the lard; then mix the turpentine with the oil of juniper and the mercurial ointment; afterwards gradually add the remainder of the lard.

Let the horse first be curried; as thoroughly as the tender state of the skin will permit. Then let all the

scurf be well brushed or whisked out of the animal's coat; next with the hand (there is no danger to the man) let the ointment be well rubbed in all over the horse. This should be repeated after three days; and, on the fifth day, the ointment which is already about the horse should, as much as possible, be rubbed in. Every part should be carefully gone over. On the seventh day the whole should be thoroughly washed off with soft soap and warm water; it will then be seen what progress has been made towards a cure. The skin will assuredly have been prepared for a repetition of those dressings, which will, in the majority of cases, be necessary, and almost always expedient.

If, after the second course of dressings, no ground appears to have been gained; the application must be changed. The next remedy that should be tried is the following:—

RECIPE (No. 49).

TAKE—Balsam of sulphur;

Oil of turpentine;

Oil of tar, of the three ingredients equal parts:

Mix these well together, and rub them fairly all over the animal, in the manner before directed, when describing the way to use the previous ointment.

In cases of mange arising from neglected or inveterate surfeit, and which are always the most difficult to be cured, it may be prudent, should the previous compositions have altogether failed, to proceed to a very strong application, which may torment the horse for a while, but will generally get rid of the disease.

RECIPE (No. 50).

Mercurial Soap for Mange.

TAKE—Soft soap, eight ounces ;
Mercurial ointment (strong), four ounces ;
Carbonate of potash, two ounces :

Smear this mixture well over the horse. After two days take a soft scrubbing-brush, and the same quantity of glycerine as of warm water, and then scrub the hide till it is white with lather. Upon the fifth day re-apply the ointment. This dressing with another scrubbing will in the generality of cases be sufficient.

The application may appear to give the horse considerable pain. It is likewise possible that some thickening of the skin may be produced, but this will shortly pass away; and when all subsides the mange will mostly have disappeared. However, as mercurial soap is by no means a very safe application, the horse subjected to it should be carefully clothed; and there should be absolute necessity, before so dangerous a cure is resorted to.

The practitioner, who has once been plagued with mange, will be to blame if he suffers any considerable itchiness to continue without endeavouring to subdue it. If it continues obstinate, he will endeavour to persuade the owner of the horse to throw up the animal for a few days; during which he will apply the mange ointment (Recipe No. 48, p. 195). Many a troublesome attack of mange will thus be prevented; and no harm can possibly be done by the dressing beyond the temporary loss attendant upon the necessary sacrifice of the horse's labour.

Little spots of mange often appear about the tail or mane; and sometimes under the collar; which should

be dressed with the ointment, or got rid of, before the disease is confirmed.

The practitioner needs not to be told how necessary it is that every thing about the horse, or with which he could by possibility have come in contact, should be thoroughly cleansed after the disease has subsided. Infection lurks in every thing about the animal; infection of which the horse may again become the victim; and from which other horses will not escape. Every article that is capable of being washed should be thoroughly scrubbed, first with soap and warm water. The manger, the racks, the partitions, should also undergo an ablution with soap and warm water, which last should be employed as hot as possible.

There is however one thing absolutely imperative towards the cure of mange. The majority of proprietors are too apt to imagine a local disease requires only local remedies; but let them inquire a little deeper. What gave rise to the disease? Enfeebled digestion always engenders it, when it is bred by the system. Therefore, the best of all alteratives,—good, nutritious, and carefully prepared food, with wholesome lodging,—is quite as needful as drugs, when the eradication of mange is desired.

MOULTING.

This cannot be considered as a disease. The changing of the coat is a natural process, which takes place every spring and autumn. It is, however, a critical time with the horse; and he frequently shows indis-

position to some extent. The truth is, that the vital energy, which should render him equal to his work, is partially depressed. More than the natural share of animal power is expended upon the skin, and is employed in the reproduction of the hair. Therefore there is a degree of languor, and incapacity for work, about the animal: he sweats with the slightest exertion; he is partially off his feed; the pulse is somewhat quickened; and he clearly labours under a slight degree of fever.

In cases of this kind we shall do well, if we endeavour to aid nature in her effort to cast off the old coat and produce the new one. Where there is work to be done, whether by the body or the legs, the strength must be supported. Tonics are now, therefore, of service; and may be given daily while the horse is exempted from violent exertion. A couple of pints of good strong ale every day is sometimes quite as good for the horse as for the master; and now it may be tried. Mashies occasionally—good food always—and sufficient exercise, will tend to bring the annoyance to a speedier termination.

Attentive grooming also is now more than ever beneficial. It will loosen the old hair, and hasten the growth of the new; and that being once accomplished, the horse will regain his former spirits, appetite, and health. In short, better diet and lessened labour, with all those many nameless attentions, which humanity would suggest should be expended upon the sick, will now be amply repaid, by the rapid improvement of the animal that receives them.

CHAPTER XXVII.

THE TREATMENT OF EXCORIATIONS, WOUNDS, AND
ULCERS—POLL EVIL—FISTULOUS WITHERS, ETC.

AMONG the more frequent excoriations are those produced by an unequal pressure of the saddle or any part of the harness, and termed

SADDLE-GALLS.

If properly treated before they become too large, or too much inflamed, or begin to deeply ulcerate, they are easily cured. The saddle should be carefully examined, and all inequality of pressure taken away by padding or chambering. The only inequality which should be permitted, and that only a temporary one, should be to prevent any bearing upon the sore part of the body.

The wound should be bathed two or three times every day with the following lotion :—

RECIPE (No. 51).

Lotion to heal the wound left by Saddle-Galls.

TAKE—Chloride of zinc, one drachm ;
Water, one quart.

SIT-FASTS.

These bear a marked resemblance to the corns of the human foot, like which they are no more than an unnatural thickening of the cuticle, consequent upon continued pressure. Most persons know that corns are

not easily removed; and these horny bodies, termed sit-fasts, when once established, remain firm in their situations: hence, to distinguish them from fluctuating or moveable tumours, they are designated sit-fasts because they require forcible removal before they will disappear.

To get rid of the sit-fast is not difficult. It may be dissected out; but the wound is sometimes long in healing, and it is oftener made so by the horse being put to work before it has thoroughly closed. A blister also will likewise cause a slough; but, when the animal must work on, perhaps it is to be preferred to the knife; because, while removing the growth, it also stimulates the flesh beneath, and thus disposes it to heal. A little of the blistering ointment ought to be daily rubbed upon, and a small distance around, the substance it is desired should be cast off. This stimulates the secretive surface, and causes it to pour out a quantity of fluid under the cuticle, which, being thereby separated from the true skin, comes away, and with it also the sit-fast. The blister, however, will generally have altered the action of the part; and, when it recovers from the first effect, healthy skin may be produced.

SUPERFICIAL WOUNDS.

Few ointments agree with the horse; wounds, whether superficial or deep, will in general be more speedily healed by the application of tinctures or lotions. The tincture of aloes is cheap, and for ordinary purposes as good as many others.

RECIPE (No. 52).

Tincture of Aloes.

TAKE—Barbadoes aloes, powdered, eight ounces;

Myrrh, powdered, two ounces;

Proof spirit, two quarts:

Let them infuse for a fortnight, shaking them well daily.

The wound should be bathed with this twice every day. If there is no danger that the horse will lick or nibble it; or that dirt and gravel will get into it, the wound will sooner heal by being kept open than if the air be excluded. Should the surface of the sore become unhealthy; and especially should fungoid granulations threaten to spring up; the sore should be washed with the following lotion.

RECIPE (No. 53).

Healing Wash for Wounds.

TAKE—Chloride of zinc, one scruple, and dissolve it in a pint of water.

If this is not sufficiently strong to repress the fungus, use a drachm of the chloride to a quart of water. But as this application is more cleanly than the foregoing tincture, and appears also to be more healing in its operation, the preparation of aloes may be dispensed with where the cheaper chloride of zinc wash can be obtained.

INCISED AND LACERATED WOUNDS.

The grand principle in the treatment of these wounds is to close them as much as possible by *the first intention*. This is not to be attempted immediately. The bleeding should first be allowed to cease. All decided moisture ought to have evapo-

rated; and the divided surfaces should have become sticky. Then, if the parts be brought together and firmly retained in that position, perfect union will frequently take place. If it is a simple cut, the edges are to be neatly brought together and kept thus by a bandage or by sutures; but, as the horse cannot be made to hold the wound in perfect rest, the speediest mode of union is rarely obtained in that animal; our endeavours, however, in every case should be exerted to bring it about.

In a lacerated wound, all the parts of it may be brought together; and perhaps a portion of divided surfaces may heal by first intention. It is, however, absolutely necessary in these cases to leave a free space in the most dependent part of a lacerated wound; in order that the natural discharge may readily escape; for the major portion of the injury is certain to unite by the suppurative process.

The wound should, in the first instance, without loss of time, be carefully cleansed from dirt, gravel, and extraneous matters. If there is much bruise it should be repeatedly moistened with a lotion composed of tincture of arnica, one ounce, water, one pint, no attempt being made to close the injury. This application should be continued till a slough has fallen off, or until the surface commences to discharge good pus.

Supposing the wound to be of great depth, nothing should be done so long as Nature appears to be performing her reparative task, well and speedily. If the suppuration becomes thin; does not flow forth freely; or should fungus sprout; the weaker solution

of the chloride of zinc ought to be injected thrice a day. If the discharge grows offensive, the solution composed of a drachm of chloride of zinc to a quart of water should be employed; and tonics with the food should be given to stimulate the system.

After contusion producing effusion into the cellular membrane, an abscess is sometimes formed. The horse is particularly subject to two of these, namely, to poll evil, and to fistulous withers.

POLL EVIL.

The horse occasionally receives a violent blow on the back part of the head, and the cellular substance of the poll becomes bruised. Inflammation follows; the part becomes hot and tender; it enlarges, and for a long period the skin above remains entire. At length it breaks, and an ulcer difficult to heal is formed. This happens much oftener in country than in town practice, either because in rural districts the roof, or the beam of the doorway, is too low. Thus a horse in the least degree restive bruises himself against them. Or because country horses are far more exposed to brutal treatment than the owners dream of. The practitioner always looks at a case of poll evil with a great deal of suspicion, and institutes every inquiry. The owner should never spare the fellow whose passion has caused such mischief.

The Veterinary Surgeon when called in to a case of poll evil should commence his treatment with the knife. Although the skin be entire, he should without delay cut down upon the most prominent part of the swelling until the tumour is laid well open. By

thus proceeding he will save much time; and spare the proprietor considerable expense and disappointment, as well as spare the animal much suffering.

Should suppuration have commenced, or should the smallest opening only exist, he must still cut freely down to reach the seat of the evil. If he be careful to avoid the wings of the atlas, or the first neck bone, there is no important artery to be injured. A large gaping wound may, therefore, be fearlessly made; and the tumour well cleaned out. The horse, subsequent to the operation, should be better fed; have a fair allowance of corn given to him, not abandoned to mashes, or turned to grass.

We must not, in these cases, expect to find the usual indications which denote the presence of matter. The abscess is generally situated under the expanded tendon of the splenius muscle, and will very seldom come fairly to a head. If allowed to remain, the pus, unable to break through the surface, will, by its pressure, cause absorption of the internal and deep-seated structures; producing sinuses, which have even reached the brain. Without, therefore, waiting for the tumour to become soft; or watching for the throbbing of the pulse and the shivering of the horse; the signs of general fever, together with the duration of the case, will enable the practitioner to form a tolerably accurate opinion as to the presence of pus. Then the swelling should be immediately opened. If the suppuration is left to go on and should break, much mischief will have been done, while the wound will be unnecessarily large, and will not so easily be healed.

The tumour having been freely opened, the abscess should be carefully examined with a probe, and the deepest part of it ascertained; and through that a seton may be passed, coming out on the side of the neck below the tumour. Two objects will thus be accomplished; no matter will lodge at the base of the abscess, for it will run out as rapidly as it is formed; and the internal surface of the ulcer will be disposed to fill up.

The tumour should be daily examined; in order to discover whether there are any little pipes running from the interior of the sac. Very often numbers of these are found; and while one is left the wound will never close. Therefore, wherever one is discovered, a seton may be passed through it. Setons may be inserted in this way through every distinct sinus; only care is required to keep the lower opening free by daily moving the tape.

This being accomplished, the course is simple; and a speedy and complete cure will sometimes be effected. In most cases it will be sufficient to wash the wound well out with the stronger solution of the chloride of zinc. This will sweeten the part, which usually smells most abominably. It will also prevent the sprouting of fungus: and being changed for the weaker solution will favour the secretion of healthy pus. Nothing more will be required: but if the case does not go on favourably, repeat the examination; for there remains something which necessitates the knife to be again employed.

The scalding mixtures, to which so many farriers cruelly resort, are always injurious. They destroy

the living surfaces to which they are applied; and often increase the mischief they should heal.

There is, however, another and a better mode of treating poll evil; and this speedier plan principally consists in the fearless employment of the knife.

With regard to the knife, no hesitation should be exhibited in its use when poll evil is to be cured; but every pipe, however large or small, ought to be slit up, as the healing process is then quickened; care being used to spare those important arteries which run upon the wings of the first bone of the neck. The opening being large, advantage is taken of it to remove any sloughing portions of tendon, &c.: and any accumulation of foul, thick pus. Then mild caustic is applied to the exposed surfaces where they seem to require it; the part is afterwards treated as a common wound. This is a very proper and efficient mode of practice; but where the practitioner is not fitly instructed, the system of setoning is the safest.

FISTULOUS WITHERS.

If the saddle has not been properly chambered, or the padding has shifted, so that the saddle presses upon the edge of the withers; if the horse is struck violently on this part, or has a habit of rolling in its stall; this affection may be produced—in fact, any injury which can produce contusion may end in fistulous withers. In the first instance it is a swelling. A perfect abscess follows; and if that be neglected, as in the previous disease, pipes or sinuses result, and the existence of these constitute fistulous withers. Therefore any swelling upon the withers should be freely cut open: thus converting that which either is

an abscess, or which would speedily become one, into a common wound. Fistulous withers are quite as serious as poll evil; for the sinuses may penetrate between the shoulder and the ribs even to the chest. Wherever they go they must be followed, and setons passed through the more deep of them. For this purpose, which involves a very dangerous operation, an instrument termed a concealed seton-needle should be employed: because the part through which the sinus travels being crowded with arteries and nerves, the use of a common needle increases the peril of the operation. This being effected, the same mode of treatment that has been recommended in poll evil may be adopted, and with equal success. The knife, however, must be boldly employed by a scientific hand. The orifice must be kept open; or where it is possible to do so with safety, the sinuses should be slit up, the after treatment consisting merely in the liberal use of the chloride of zinc wash. Fistulous withers are more likely to return than poll evil is, from the pressure which may be too soon brought to bear on a tender and an irritable part.

WOUNDS PENETRATING THE CHEST OR BELLY.

The horse is not so subject to these as cattle are; but he is now and then staked and occasionally gored. If the wound is on the side, its direction and locality will explain whether it has penetrated the cavity of the chest. This fact will likewise be told by a peculiar hissing sound at each act of breathing; and by a bloody froth being about the mouth of the wound. These wounds must be closed as quickly and as accurately as possible; a pledget of lint moistened

with the chloride of zinc wash should be put over the wound; above this a larger piece of oil-silk, and above all a broad bandage, which last, by straps extending between the fore legs and over the shoulder, may be securely retained in its place.

The bandage should not, if possible, be removed during the first three or four days. The wound, in a great many cases, will then be nearly or quite closed. If necessary, a fresh pledget must be put on, and the bandage replaced. The chance of healing the wound, and avoiding fatal pleuritic inflammation, is obtained by keeping the opening perfectly closed.

In wounds of the abdomen it will be necessary to cast the horse, in order to favour the return of any protruded intestine. The part that has escaped must be carefully cleaned and returned; and great care taken that no portion of it is wounded by, or included in, the sutures, by which the orifice, if large, must be brought together. Some have advised to include a small portion of the peritoneum in the stitches, in order to secure more rapid adhesion. It must be remembered, however, that when this method is adopted there is considerable danger of inflammation; it should, therefore, be recollected that there is a choice of evils, and neither one plan nor the other should be carelessly followed.

In either case some means should be resorted to, in order to avoid inflammation. This, however, can only be done by attending to the symptoms that are presented; for these will vary with the nature or extent of the injury, and with the condition and temperament of the animal.

CHAPTER XXVIII.

INJURIES AND LAMENESS OF THE FORE
EXTREMITIES.

SHOULDER LAMENESS.

THIS, in a few instances, occurs, but not so frequently as the farrier imagines. The proof of the lameness being in the shoulder, and not lower down, is the peculiar gait of the animal. The horse suffers pain at every motion of the shoulder, and therefore limits the action of the bone as much as he can by not lifting or advancing the foot; but dragging it after him along the ground. This is the principal and most general symptom. When the lameness is in the foot or leg, the foot is readily lifted; in an affection of the shoulder the foot may not be raised at all.

Another, and even a more certain mode of distinguishing between lameness of the foot and the shoulder, is to lift the foot; and then gradually extend the limb forward. If the injury is in the foot, the horse will generally suffer no kind of pain from the extension of the leg; but if the shoulder be injured, he will exhibit very great agony when it is attempted to bring the limb forward.

The shoulder should be well fomented; a calkin put on the heel of the shoe; blood taken from the toe of the foot or the plate vein; and a dose of physic administered. If the lameness continue after this, a liquid blister, diluted by the addition of its own bulk

of oil, should be rubbed on the shoulder daily, until it causes considerable swelling; when it should be discontinued; but afterwards repeated if necessary.

Dislocation of the shoulder very rarely happens; for the mass of strong muscle accumulated upon and around the bone, renders it almost impossible; should it, however, occur, there is no method by which a sufficient power can be applied to replace the bone.

The point of the shoulder, however, is exposed to injury from its situation. Fomentations, with water, one quart; tincture of arnica, two ounces; will form the best application, in any serious case of bruise of this part; and there can hardly be a better one for dispersing any swelling, or for removing coagulated blood. Local bleeding will not be required, unless the suffering be extreme. Physic is best not given: but if the fever run high, a pound of Epsom salts may be dissolved in half a pail of water, and placed before the patient. If, however, the shock seems to have debilitated the system: if the pulse be weak, but quick, a drink composed of sulphuric ether and laudanum, of each one ounce, with water one pint, should be administered; but neither bleeding nor physic thought of. If any portion of the bone of the shoulder-blade, or of the fore-arm, should appear to be fractured; the whole joint should be covered with a charge, and the horse be well fed and kept quiet in a stall.

SPRAIN OF THE FORE-ARM.

The muscles of the fore-arm are occasionally sprained; such an injury is readily ascertained by the heat and tenderness of the part. The same kind of

fomentation as is mentioned in the preceding article, followed by the like stimulating application and rest, will be useful here.

INJURIES OF THE ELBOW-JOINT.

The most frequent injury of the elbow-joint is a tumour (capped elbow) usually at first soft, and situated on the point of the olecranon. The capped elbow arises from various causes; the most frequent is the pressure of the calkin of the shoe on the elbow, caused by an awkward doubling up of the fore legs when the horse is lying down. The heels should be examined, and the calkins lowered.

While the contents of the tumour are yet fluid, it is best to waste no time with lotions, or washes, in the hope of dispersing the swelling. Cut at once boldly upon it, and afterwards either dissect out the sac, or destroy it effectually by the application of caustic. The frequent bathing of the part with the weaker solution of the chloride of zinc, is all that will be necessary afterwards; though frequently wounds upon the joint of the elbow, engendered by the cap being neglected, are long in healing.

As the tumour enlarges, its weight often causes it to become pendulous. It likewise may change its character, and become hard or scirrhus. An incision, in the latter case, should be made through the skin the whole length of the enlargement. The skin should be carefully dissected back, and the tumour taken away entire. This is the preferable way of proceeding. No seton (consisting of coarse tape) should be passed

through the body of the swelling. Such things may irritate but cannot remove the tumour.

The elbow-joint is occasionally opened by kicking; or by a cut from the broken shafts in falling; or by the carelessness or brutality of the carter. The existence of this may be suspected from the rapid and very great swelling of the joint; its extreme heat and tenderness, with most piteous lameness; it is also clearly ascertained by the glairy nature of the discharge. The treatment of this injury will be indicated when "opened joints" come under consideration.

In a few cases fracture of the bone of the elbow has occurred. This is a very serious business; for, when the immense stress on the point of this bone is considered, it cannot be expected that union can take place, however skilful may be the treatment pursued.

BROKEN KNEES.

Any division of the skin of the knee is known by this name; and the common cause is falling down. A simple graze or scratch may be of little consequence when rightly treated; but, if neglected, a portion of the skin may slough, which will be very serious business, as it affects the value of the horse. When the knees are injured, the parts should be thoroughly cleansed; and if they are, as they generally will be, bruised, fomentations composed of tincture of arnica, two ounces; water, one pint; should be diligently applied night and day, for four days or a week—until the swelling subsides or a slough takes place. At the expiration of that time, the weaker solution of chloride of zinc ought to be employed: and perse-

vered with throughout the healing process. When the wound has healed, if any hair be wanting, leave the reparation to time, which in a month or two will narrow the cicatrix, and thus conceal the blemish. Ointments or bandages will but render the deficiency larger and more permanent.

Broken knees, in fact, are no more than simple wounds; and all the directions which have been given as to the manner of treating those lesions must be applied to these accidents.

OPEN JOINT.

Many a valuable horse is destroyed by this accident. The ligaments of the joint being cut through, two bad consequences ensue. The air has access to a cavity unused to its stimulus, and inflammation ensues: the joint-oil also, which was interposed between the bones, in order to prevent friction, having escaped, the ends press upon one another, and a still more violent inflammation is established, under which the powers of nature soon fail. Therefore the object to be accomplished is to close the joint, and that as speedily as possible; in order that the air may be excluded, and the escape of joint-oil once more prevented.

The wound must first be thoroughly cleaned; so that the part may be fairly examined, and every particle of foreign substance removed. This can only be effectually done in the first instance, or very soon after the accident has occurred. When newly opened, the joint is not sensitive; and the practitioner should avail himself of this fact to make a thorough examination. After a day has passed, however, inflammation

will have commenced; and the part which previously could be probed and handled, without causing any pain, becomes so acutely sensitive, that the horse will not allow it to be touched. The nature and extent of the wound must, therefore, in the first instance, be carefully ascertained. The probe will generally determine very speedily whether the ligaments of the joint have been cut through. The peculiar jar and grating of the bone underneath, when the metal is brought into contact with it, can scarcely be mistaken.

If the orifice is large, and extends, as it were, across the knee; is much lacerated and very ragged at its edges, it will probably be a serious matter; for in such a case the tendons of the extensor muscles, in addition to the ligaments of the joint, must have been separated, and it may be merciful to destroy the horse. It certainly will be serious if the wound is between the upper row of the knee and the bones of the arm; for a great deal of action will necessarily take place at this joint. If it be opposite to the middle row of the joint, the case is more favourable, for there is less action in these parts.

The old way of closing the wound is by many persons much admired; and the practitioner, who resolves to employ it, will go to work at once, before the membrane of the joint has taken on inflammation. Any of the adjacent parts being much lacerated must be removed; but as little as possible should be taken away. The common firing-iron should then be taken; and brought almost to a white heat; and run rapidly over the wound and with a medium pressure; the

lines being of a lozenge form and near to each other, more particularly at the centre of the wound.

The object of this is to produce considerable inflammation, with consequent swelling; and so mechanically to close up the wound. A pledget of tow dipped in tincture of aloes must now be placed over the part, and bound down by a calico bandage four inches wide, and about four yards in length; which must be applied as equally as possible, and not removed for six or seven days.

There must be very great swelling, and the horse must be suffering considerably, in order to justify the removal of the bandage before its time; but two or three little snips in it, above and below, may give some ease.

It will seldom be found that when the bandage is first removed the orifice will have been perfectly closed; therefore the iron should be ready, and be applied again, but not so extensively or so severely. The budding-iron may also be resorted to, in order more effectually and deeply to sear the edges of the central opening. Once more the wound should not be opened for a week; and even then a third application of the iron may be necessary. This plan of treatment, however, is very severe; and certainly is not to be justified by any appeal to scientific principles. The iron does no more than the bandage would do without it; for the last, quite as much as the swelling induced by the fire, stops the flow of the joint-oil; and the cautery cannot be supposed to expedite the healing process. The cautery, moreover, induces a slough; and suppuration must ensue. Now, to dam up pus is

one of the measures abhorrent to all modern surgery ; and, therefore, it is wrong to apply a bandage after using the iron. The hot iron, moreover, is a most destructive tool. If it does no good, it must do harm ; and consequently it should rarely be found in the hands of the Veterinary Surgeon who has to deal with other people's property.

A simple bandage kept moist with cold water, and retained on for ten or twelve days, has in rare instances effected a cure ; but such an application has far oftener failed, and so have many other things, for the applications used to open joints are very numerous. Quicklime ; alum ; sulphate of copper ; the bichloride of mercury dissolved in spirits of wine ; and nearly every astringent and caustic, mild or powerful, have been tried in turns ; and all are reported to have been successful. All, however, are too well known to have frequently failed. The caustics require to be repeatedly applied ; that is, they must be resorted to as often as the joint-oil appears. And not unseldom, by destroying the surrounding structures, they enlarge the orifice which they were intended to plug up ; thus aggravating the very evil they were employed to remedy.

No poultice or ointment should be applied to an open joint ; the simple object to be pursued is to close the opening. This such applications will retard. Knowing they have that effect, some persons use them in doubtful cases ; that the poultice may aggravate the lesion, and, if the joint be opened, not allow the oil to escape. This is a cruel folly, and should never be practised. In every suspicious case the

simple lotions just recommended are the very best medicaments; for they may prevent that which the poultice induces. If the joint-oil escapes, it is easily recognized by its peculiar odour; by its glairy nature; by its being thick, sticky, and transparent; very much resembling the white of an egg. But the chloride of zinc lotion coagulates the synovia, and this forms the most effective and the most natural of bandages.

The Surgeon, moreover, will be enabled by the wound being left uncovered to determine at all times, whether he is making progress towards a cure; and he should recollect that nothing will excuse his prolonging torture when hope has fled.

Altogether the best plan of cure for open joint is, however, that which we are about to describe. After the wound has been cleansed it is to be bathed day and night with the solution of the tincture of arnica for four days. At the expiration of this time the slings must be put under the horse. The head having been tied up from the first, a horse thereby being kept standing, will generally take to the slings with evident gratitude. The arnica lotion is then to be cast aside; and another consisting of a scruple of the chloride of zinc to a pint of water assiduously employed; the liquid being squeezed from a sponge upon the limb, but above the wound, and allowed to gravitate over the knee. This is all the process. No stench will arise from the sore. All the pus which is secreted will rapidly escape. The horse will be put to no torture; for the cool lotion is rather pleasant than otherwise to the feverish wound. No spurious granulation will spring up; but every thing will go on well.

Neither fire nor caustic will be necessary; and very few precautions need be taken to secure success. Amongst these, however, are the tying up of the horse's head—the manner of applying the lotion—and prudence in not touching the wound. In the first place; the head must be so tied up, and the slings so fixed, that the animal may not either strike or rub his knee against the manger, or any substance in front of him. In the second place, the wash is not to be dashed upon the wound; but a sponge is to be saturated with the solution, and this sponge is to be squeezed dry above the sore upon a sound part of the leg. The liquid is then to be suffered to trickle over the injured joint. And in the third place; although a bunch so large as a man's closed fist should form in front of the part, it must upon no account be touched, or in any way disturbed. Every thing, in short, ought to be done to promote and to preserve such a growth. It is coagulated synovia; it is plugging up the orifice; and, when the pendent lump of coagulated synovia appears, the main difficulty is surmounted.

This method of cure is so sure, so speedy, so humane, and so cleanly, that it requires no word here to recommend it. The joint is generally healed in a month, or in six weeks; and in another period all blemish, supposing the injury not to have been unusually severe, has disappeared.

SPEEDY CUT.

Another serious evil presents itself immediately be-

low the knee, in the form of a scar, wound, swelling, or bony enlargement, upon the inside of the leg. This is mostly found in horses with high action; the hoof or edge of the shoe being struck against the inside of the opposite leg; the blow is sometimes so violent, and the pain so great, that the horse suddenly drops, to the imminent danger of the rider. A speedy cut materially diminishes the value of the horse; for such an animal can never be considered as safe.

Should the injury be fresh, the part must be protected, and treated as a common wound. If the place has healed, but still continues sensitive, the tenderness may be abated or removed by means of cooling applications; or, should it be accompanied with much enlargement, perhaps the swelling will require protection by means of a leathern covering. But, if the evil is ever to be prevented, it may be by filing away any projecting edge of the shoe; by rasping down the inside quarter of the hoof; by the use of a shoe one side being higher than the other, and the nails confined to the outer side alone; and especially by not over-weighting the horse, or putting it beyond its pace. Moreover, every one possessing an animal which has recently exhibited this defect should at once attend to the system generally, and not begrudge to an exhausted nature a necessary period of rest.

SPLINT.

Splints, strictly defined, are ossifications of a peculiar fibro-cartilaginous substance, by means of which the small bones are joined to the large bone of the leg; horsemen, however, agree in calling any little

bony tumour below the knee and above the pastern a *splint*. Their causes are various: early and hard work; over-weighting of the horse; exhaustion and external violence.

The most general cause of splints is hard trotting under a heavy weight. Young horses are most subject to them; for then the parts are not sufficiently consolidated to endure the strain which an older animal might sustain without injury. The inside of the leg is the place where they generally appear. Inflammation is first produced, accompanied with heat, swelling, and pain. The horse shrinks back when the part is pressed; he does not, when in motion, freely bend the leg; but often exhibits that peculiar action which is denominated "dishing;" which word implies that when the fore leg is raised and in the air, it is decidedly inclined in the outward direction. Lameness, of course, is present; but, as a general rule, it exists only while the inflammation continues. This is, in a great measure, consequent upon the swelling rendering the periosteum tense; or upon the fibrous covering to the bone, beneath which the enlargement is situated, being stretched on the tumour during the action of the limb. When the inflammation abates, the swelling is converted into bone; and with the change sensation departs. The horse becomes sound; the splint being of no further importance than so far as its size may be a deformity, or expose it to being struck; or so far as it may interfere with the springy action of the animal, which, however, it seldom does to any sensible degree. In some few cases, however, a splint will be so situated as to inter-

fere with the knee-joint, or with some tendons of the leg; it then causes either imperfect action, or, it may be, permanent lameness ensues. If it does not interfere with the action of the joint, or the play of any ligament or tendon, and is not in an active or growing state, a splint may be unsightly—but it may be of little further detriment to the horse. Some knowledge of the anatomy of the leg or considerable observation as to the effect of splints is necessary to decide on their importance, and to define the hopes that may be entertained from their treatment.

If they are productive of lameness, poultices or fomentations having been first employed to abate the inflammation; the hair should then be cut very close around the cause of mischief: a little mercurial ointment may be well rubbed in for three or four days; or, what is still better, a compound of iodine with mercurial ointment should be used, to which a blister may succeed. The blister should be actively rubbed in on the fourth or fifth morning, the former application having been washed off. If one blister makes no change in the size of the splint, another should be applied: but beyond this it is not worth while to go; for it will often happen that the effect of the blister is not immediately beneficial; but begins to become apparent a week or a fortnight after the practitioner imagines he had been labouring in vain.

In some cases, however, it may be desirable to combine the benefits sought for in the treatment just described: and, when this can be attempted, the following ointment is often used with the best possible effect.

RECIPE (No. 54).

Ointment for Splints.

Iodine, two drachms ;
Mercurial ointment (strong), one ounce ;
Spermaceti ointment, two ounces.

Rub the ointment well down with the spermaceti ; to this add the iodine ; having thoroughly mixed these, the preparation is fit for use. A portion of this may be applied with a half-hour's friction daily, till the place becomes sore ; when it should be for a time discontinued ; but again resorted to, so soon as the condition of the tumour permits.

These means will not, however, always succeed ; but sometimes an operation gives speedy relief.

A small incision is made through the skin below, and also above the splint ; next a blunt seton needle is passed in at one opening, and brought out at the other, so as to make a channel under the skin ; into this a bistoury is introduced, and the operator cuts down on the splint so as to divide the periosteum ; then withdrawing the knife, he inserts from the upper to the lower incision a small seton, which is allowed to remain in for ten days or a fortnight. This operation will sometimes succeed in removing the lameness ; and in diminishing the enlargement of young horses, although its success is by no means certain.

Splints are oftenest seen in colts ; generally they are not perceived in old horses, being removed by the process of absorption, which we have little power to hasten or retard.

SPRAIN OF THE BACK SINEWS.

This calamity is often occasioned by the horse being over-weighted, and ridden far and fast, especially if the animal's pasterns are long: but it may be produced by a false step; or from the heels of the shoes being too much lowered. The thin-heeled shoes that were once in fashion did irreparable mischief in this respect.

Sprain of the back sinews is detected by swelling and heat at the back part of the leg; puffiness along the course of the sinews; extreme tenderness, so far as the swelling or the heat extends; accompanied by very great lameness.

The first object is to abate the inflammation; and this should be attempted by local applications to the back of the leg, in the form of fomentations, sufficiently hot, and frequently repeated. The solution of arnica is an excellent and a fashionable application to injuries of this kind. Or a cold poultice may be made with the tincture and placed upon the part; at the same time as much strain as possible should be taken from the sinew by putting on to the horse's foot a high-heeled shoe.

The horse should be put upon mash diet for a day or two, and have physic, should not purging ensue. When, in the course of a short time, the leg will bear a little pressure, a different course should be pursued. The inflammation having been abated, the practitioner should think of reducing the enlargement, lest it should become organized or confirmed; when, if it did not perpetuate the lameness, it would at least

interfere with the motions of the body and limit the action of the limb.

It is too frequently the absurd practice of the farrier to attempt this by means of hot oils or blisters, immediately after the accident, and before the inflammation is subdued. By doing this he increases the inflammation, and aggravates the evil; often rendering a thorough cure impossible.

The first application, with a view to promote the absorption of the matter thrown out, should be pressure; cautiously applied at the beginning, and only increased as the animal can bear it. The bandage being wetted with water, in order that the leg may be kept cool; thus, not only the inflammation will be lessened, but the tone and strength of the parts in some degree restored.

In slight cases, when the tenderness, heat, swelling, and lameness have all subsided, the horse may go to work, if he does not go too far or too fast: but, if the sprain has been severe, considerable enlargement will remain after the absolute lameness has disappeared. This will materially interfere with the free and safe action of the limb; therefore, and especially where quick work is required, it will be expedient to rub the injury morning and night with a little ointment, formed by mixing one drachm of iodide of lead with one ounce of lard.

WIND-GALLS.

At the back of the leg, just above the fetlock joint, Mr. Varnell has shown that the flexor tendons are encased in a synovial sheath. Its use is to facilitate the motion of the various structures upon each other;

but, if irritated by excessive work, the synovial sac appears to bulge out at the weakest parts of the confining membrane. These enlargements constitute wind-galls, which rarely lame, unless they are very large or start up suddenly; being then evidently produced by violent action, and attended with inflammation. They are, however, always blemishes; and generally pretty certain evidence that a horse has done some heavy work.

The mode of treatment is the same as in sprain of the back sinews. When there is much heat about the part, fomentations will be useful; but the wind-gall will sooner bear pressure than the sprained sinew will. An indian rubber bandage confining pieces of cork which rest upon lint placed over the wind-galls should be applied, and if the lint previous to its use is thoroughly wetted it will be of greater service.

If the wind-galls will not yield to this, a portion of the iodide of lead ointment, recommended to be used in the previous article, may be daily rubbed over the enlarged sacs. This keeps a constant stimulus upon the part; not sufficient to blister or to cause lameness, but enough to rouse the absorbents to more powerful action. Should, however, any soreness be induced, the ointment must be omitted for two, three, four days, or longer, till all irritation has disappeared.

The wind-galls, however, are not so difficult to remove as to prevent returning upon the slightest work. For this reason these enlargements in all horses kept for actual service, not for show, had better be let alone unless they occasion deformity or produce lameness; as the proprietor will thus spare

himself much loss in keep, expense in treatment, and very probably ultimate disappointment.

SPRAIN OF THE FETLOCK JOINT.

Fortunately this is a rare occurrence; but, when it does happen, it is a serious business, because of the pain produced by the slightest action of the joint, of the enduring character of the inflammation, and of the bones being apt to enlarge, and to interfere with the proper use of the foot. It may be generally distinguished from sprain of the *back sinews*, by the heat and tenderness and enlargement being clearly around the fetlock, and in a manner confined to it; but occasionally the animal is slaughtered without the fetlock joint even being examined or suspected.

The mode of treatment is still the same. Fomentations will be as effectual as in strains higher up; and these must in their turn give way to pressure and cold water. Firing is never necessary; but the horse can seldom be safely returned to his work without an active blister finishing the treatment.

RUPTURE AND SPRAIN OF THE SUSPENSORY LIGAMENT.

At the back of the fetlock are two little irregularly-shaped bones, attached to the joint, and forming part of it; they are called the sessamoid bones. A ligament, descending from the back of the knee as well as the back of the hock, and descending behind the bone of the leg, is, at the fetlock, attached to the upper part of these bones, which it extends below and divides, the extremities being ultimately inserted into the

small pastern bone. It is called the *suspensory ligament* ; because it materially assists in supporting the weight of the frame whenever the leg is placed upon the earth.

It must have been observed how the pasterns and the fetlock yield ; how these parts are brought almost to the ground in the rapid action of the blood-horse, particularly if he has long pasterns. This ligament, though quite as muscular as elastic, sustains the weight of the horse ; for the principal yielding is confined to the pastern. The foot being again lifted, the ligament contracts to its natural length, and the sessamoids, which had been forced downward, reoccupy their former places. In this gradual play of the suspensory ligament, consists the easy and pleasant action of the horse with oblique pasterns. In the horse with short and upright pasterns, which are capable of little motion, the weight and concussion are thrown more on the bones, and the action is jolting ; hence the greater liability to sprain and enlargement of the fetlock joint.

This ligament, as it may be easily imagined, is subject to serious injury. It is sometimes ruptured ; and the horse is said to *break down*. The fetlock, no longer supported by the suspensory ligament, touches the ground ; the lameness is dreadful. This lowering of the fetlock will distinguish rupture of the ligament from sprain of the back sinew. The injury, however, in breaking down is seldom strictly confined to the suspensory ligament ; but the integrity of the pastern joint is destroyed, and other ligamentous structures are also torn asunder.

This is a serious, and, generally speaking, an irreparable injury; for it will be almost impossible to keep the divided edges of the various parts long enough in contact for reunion to take place. A shoe with a high heel must be put on; the leg must be well bandaged, and perfect quiet must be enjoined. Inflammation may be generally kept under by the application of the cold solution of the tincture of arnica; but no stimulating application must be used until all inflammation is removed; when the leg having been repeatedly bathed with the solution of chloride of zinc, the iodide of lead ointment may be freely used to reduce the swelling.

A much more frequent injury than that just described, though fortunately one much less severe, is a strain and enlargement of the suspensory ligament; sometimes on one, but often on both sides. The treatment should be similar to that before advised; that is, first to place on a high-heeled shoe; then to remove the inflammation by cooling lotions; and ultimately to stimulate the enlargement by employing the ointment just named.

CUTTING.

The inside of the fetlock is often bruised and cut by the opposite foot. This is particularly the case in young horses, before the joints attain their proper strength; for the same reason animals when they are tired frequently cut, for the legs can no longer preserve their perpendicular motion.

There are few things more difficult to cure than cutting: the inner heel has been raised and lowered;

the outer heel has been raised and lowered also; in both cases occasionally with good effect; but, oftener, the horse continues to cut, no matter to which side the bearing is thrown. That which has oftenest succeeded, is the level paring of the foot, with the level surface or bearing of the shoe; at the same time an additional nail being put on the outer side, and only one nail on the inner side of the shoe—and that one near to the toe. This *unfettered* way of shoeing, while it gives perfect security to the shoe, permits the foot in some degree to expand; hence straightforward and safe motion is the more likely to be preserved. At the same time any projecting edge of the shoe beyond the crust should be carefully filed down; and the inside quarter, and particularly if there is any appearance of the hoof bulging, should be gently rasped; for the horse as often bruises the fetlock with the side of the opposite foot as he cuts it with the edge of the shoe.

SPRAIN OF THE PASTER N JOINT.

This joint is not often injured; but has sometimes been severely sprained. The seat of the injury may be detected, as in the other cases of a similar nature, by the heat, swelling, and tenderness; the same course of treatment must be pursued.

STRAIN OF THE COFFIN JOINT.

The symptoms which are strictly proper to this injury can hardly be stated; since, whenever the coffin joint is sprained, the surrounding structures must certainly be involved. Heats, swelling, lame-

ness, tenderness upon pressure, and disinclination to bend the joint, will be present. The treatment should consist in bleeding the toe; after which the foot should be bound up in cloths wetted with tincture of arnica; and subsequently treated with the ointment of iodide of lead.

RING-BONE.

From the great action of the pastern joints, and the injuries to which the bones and ligaments are exposed, inflammation is often accompanied by the deposition of bony matter; ring-bone, so called because it sometimes extends round the pastern, being the sad consequence of sprain. Occasionally it begins as high up as the superior articulation of the larger pastern bone; sometimes about the joint formed by the two pastern bones; and generally it involves the lower pastern and coffin bones. As a consequence of inflammation bone is deposited; and apparently certain structures entirely change their natures under the action of disease. The lateral or side ligaments are those that are oftenest or soonest affected; ring-bone is then discovered, in its early state, by a rounded hard projection on each side immediately above the coronet.

Ring-bone is always accompanied by lameness at the commencement: but the extent of the after lameness depends on the degree in which the bony tumour interferes with the action of the joint. In some cases it disappears altogether, particularly in the hind feet; where the concussion is not so great, and the inflammation is not generally so intense. In the fore feet,

which support more of the weight of the body, the bony deposit is usually greater; it commonly involves one or both of the pastern joints. Lameness, and of an incurable nature, is the result should side-bones also exist, or if the ring should extend under the cartilages; and it not unfrequently happens that the coffin joint, being surrounded by unyielding bone, is entirely lost.

It is of little use to meddle with ring-bone unless we begin at its commencement; and then it should be attacked in good earnest. Local bleeding, and lotions, should be first employed; the inflammation being removed, the repeated and persevering use of the iodide of lead ointment should be adopted, not so much with a view of causing absorption as with an expectation of checking any further deposit of bony matter. All, however, will often fail; for the incessant action of the parts, and the pressure on them, render it very difficult to arrest the progress of the inflammation. In a confirmed case of ring-bone, especially where the joint is lost, it would be the height of cruelty to subject the poor animal to the useless torture of the iron; and when side-bones and ring-bones exist together, neurotomy is the only means which can afford temporary relief.

GROGGINESS—KNUCKLING, ETC.

This is a frequent tremulous motion of the fore leg, with a bowing of the knee, and some degree of knuckling of the fetlock; while upon the slightest tap behind the knee the joint yields. There is an evident loss of power and energy in the limb, and though in

some measure a natural defect, it is often a proof that the horse has been hard worked; it is probable that he can then endure little further exertion.

The various structures which compose the limb have been overtaxed; they have become weak; the flexor tendons have been irritated to contract, and thus the limb is greatly thrown out of the perpendicular. There is little remedy for it but the constant application of cool lotions with rest, while the horse enjoys the salutary and bracing influence of cold effusions on the legs and feet.

FRACTURES.

A horse is often condemned without cause, on account of fracture of the bones of the fore legs. Either the practitioner dislikes the trouble; or the proprietor is loth to make the proper remuneration. The only circumstances that will justify the abandonment of a horse with fractured leg are when it is a compound fracture; the integument and muscular parts being lacerated as well as the bone broken into numerous pieces; then, indeed, the case is hopeless.

The cure of fracture of the shank-bone may be undertaken with fair prospect of success. All that is to be done is to cut the hair closely off the part; to bring—and as gently as may be—the divided edges of the bones in apposition: to retain them there by means of splints, which shall reach a considerable way above and below the injured part.

The limb should first be well encased in cloth; then upon the outside of the cloth, wood which has been well boiled should be applied. In this condition

wood may be modelled to the inequalities of the limb, if used before all the heat has departed. The splints are to be firmly bound by a broad canvas bandage, and the whole kept constantly wet with cold water.

This should be done in the box or stall, in which it is intended that the horse should remain. He should then be left as much as possible to himself. He will take care of his broken leg; he will not press upon it for many a day; and not at all, until he can do so without much pain; and, in many more cases than some have imagined, the fractured bone will unite, and the horse will do well.

Slings should not be used in the first instance; but the horse should have his head tied up for four nights, and then the slings may be offered, but these reliefs should not be continued too long. The excoriations and other inconveniences occasioned by the long use of the slings have, more than any thing else, brought the treatment of fractures into disrepute.

Fractures of the hind extremities are more serious affairs, and should be undertaken with great caution. But after either injury a long rest should be allowed, and a full allowance of the best food supplied.

CHAPTER XXIX.

INJURIES AND LAMENESS OF THE HIND EXTREMITIES —FRACTURE OF THE HAUNCH.

THE point of the hip, or haunch, is exposed to considerable danger from accident or brutal force. Either

in consequence of falling, or being run violently against, or receiving a heavy blow, the prominent parts of the haunch may be broken off. There is an immense mass of powerful muscle here; so that it would be utterly impossible to keep the disunited pieces of bone accurately together: yet nature will do much towards it; for if, after the inflammation has a little abated, a thick charge be put over the loins, the fractured portions may some months afterwards be found connected with the part from which they had been separated. There will always, however, be some difference in the appearance of the two hips, yet very rarely any lameness; and the horse will perform its work with tolerable ease, but never with the former pleasure to itself.

SPRAIN OF THE ROUND BONE.

One would think it was impossible that the ligaments connecting the thigh-bone with the haunch could be subject to sprain; the enormous mass of muscle by which they are surrounded seems to bid defiance to any power of extension. Dislocation, or even strain of this joint, does not occur so often as the groom imagines. Lameness from sprain of the round bone is sometimes characterized by the horse dragging his toe behind him; and other times by a very peculiar rotatory, indecisive motion of the limb. The best proof, however, of the lameness being seated here is the pain evinced by the animal when this joint is firmly pressed upon. There is seldom much enlargement, and the injured part is too deep for the heat to be always felt.

If washes are applied at all in the treatment of this lameness, they should be as cold as they can be procured, and frequently repeated; but it will generally be the best practice to have immediate recourse to stimulants. Rest is absolutely necessary, and, should the lameness long continue, a charge should be placed on the part; the horse being housed to prevent the annoyance of flies, and liberally fed.

STIFLE LAMENESS.

Than the round bone there is much oftener lameness in the stifle, and there are few places where the actual cause of lameness is so deceptive, or so little understood. There is seldom sprain of the joint; but frequently dislocation of the patella. The horse is found standing with his hind leg thrust backwards as far as possible; resting upon the fetlock, the pastern being perfectly bent and the limb fixed. The animal is evidently in great pain; perspiring profusely and heaving sadly at the flanks.

The case, however, is easily treated. Some persons proceed in a very summary way: they give the horse a lash or two with a whip, and by his violent effort to get away from the punishment, the limb sometimes is flexed, when the bone which answers to the knee-pan in man returns into its place. This, probably, would not succeed in many cases, for there is some danger attending so rude an operation; the ligaments of the patella may be sprained, or even ruptured, by the sudden and violent action of the muscles.

The dislocation can be reduced without much trouble or any danger. It always takes place outwardly. An

assistant should lift the lame leg, and carry it forward, while the surgeon presses upon the edge of the patella; the bone will then be returned to its natural situation with a facility that would scarcely be expected. If some hours should have passed between the dislocation and its attempted reduction, the ligaments will have been weakened; and the bone sometimes slips out again as soon as the pressure is removed: it will always, therefore, be prudent to let some one remain pressing against the part for several hours, and to bathe the joint with cold lotion; or to stimulate the part at once, if the bone has previously been subject to dislocation. Should not the ligaments even then have regained sufficient strength, the cautery will probably be needed. Much inflammation, and enlargement of the joint, and even fracture of the patella, arise from contusions received in hunting, or when a horse is running away. Rest, fomentation, and, if unavoidable, blistering, are the proper remedies for ordinary accidents; but fracture of the patella seems to be beyond the aid of Veterinary Surgery.

The muscles of the thigh, generally, and particularly of the inside of it, have sometimes been severely sprained in hunting, where the country is deep and the fences high. Rest and fomentation, with gentle medicines, are the remedies indicated here.

THOROUGH-PIN.

Above the hock we sometimes find a soft swelling. It generally projects on both sides, and is therefore called a *thorough-pin*. This tumour is situated in front of the point of the hock; and is commonly con-

nected with the hock joint itself. It is not necessarily a cause of lameness; it comparatively seldom is so, unless, by its bulk, or by its being near to the flexor tendons, it interferes with the action of the joint.

If the tumour is small, and there is no lameness, it is better to let it alone; but if it is evidently increasing, or there is the slightest lameness, an attempt may be made to subdue it by treatment the same as that recommended for wind-galls, similar to which thorough-pin springs from a like nature and a like cause. Or should the measures proposed appear too troublesome, the following ointment affords some hope of a cure being effected.

RECIPE (No. 55).

TAKE—Biniodide of mercury, one part ;
Lard or palm oil, seven parts :
Rub together in a mortar.

About the size of a hazel-nut should be rubbed on the part, and to be repeated daily until a considerable scurf is produced.

Constant pressure, however, kept up by means of an indian rubber bandage, or a kind of truss made for the purpose, has been found to answer more frequently than any stimulating application, which, in too many instances, has increased that which it was intended to diminish.

CAPPED HOCK.

At the point of the hock a tumour occasionally appears; at first soft, and containing some fluid. It is usually the consequence of violence; and is most frequently produced by the animal's kicking. It is

rarely accompanied by lameness; or, when the action of the joint has been impeded, that has oftenest proceeded from injury inflicted on the hock itself, and has not been caused by the cap of the hock. It should, however, be removed; for it is apt to increase with a slight repetition of the first exciting cause.

The inflammation should first be reduced by cold applications; and, this being accomplished, the groom should hand-rub the part for several hours in the course of the day. The friction should be persevered in for a considerable time; and a small quantity of the tincture of iodine may at the same time be used. On no account should a seton be passed through a swelling of this nature; and blistering or firing generally do harm. The tumour may, however, be opened. But if this is done, the sac should either be dissected out or destroyed with caustic; else so much irritation may ensue as will endanger even the life of the animal.

BOG-SPAVIN

consists of a synovial distention of the capsular ligament of the joint formed by the tibia and the upper bone of the hock. When it appears suddenly, and is considerable, it is attended with lameness, from inflammation of the joint; but otherwise it is generally free from both lameness and inflammation.

Little can be done in these cases, beyond abating the inflammation: with which object a high-heeled shoe should be put on, and the part constantly wetted with the solution of the tincture of arnica. Blistering, setoning, and firing are of no use. When the

first symptoms have subsided, the ligaments having accommodated themselves to the enlargement, beyond the disfigurement it occasions, bog-spavin will generally be of little consequence.

BLOOD-SPAVIN.

This is said to have consisted of a varicose or an enlarged state of the vein which crosses the front of the hock. It was never seen unless bog-spavin existed; for it was the distention of the upper joint of the hock which, pressing upon the vein, and preventing the blood from passing onward to the heart, causes the vessel to dilate. Medicine here was of no use, and external applications were thrown away. The only means of cure was to take up the vein: and an operation was required. But fortunately this affection is now a thing of the past. The editor has never met with the practitioner who had encountered a case of the kind. But should an instance of this deformity be met with by any of our readers, ligatures passed around the vessel, above and below the varicosity, would be indicated as the proper mode of cure.

BONE-SPAVIN.

From a consideration of the anatomy of the leg, it will be evident that the weight of the horse is not equally borne by all the bones. A more than proportionate share is cast upon the small bones on the inside of the hock. These also have to bear the greater part of that concussion to which the hind limb is subject. The inner bones support considerably

more than their share of the burden. It has been shown that this was the case in the fore leg, and that in consequence of it the horse was subject to splint. In the same manner the smaller bones of the hock on the inner side, together with the ligaments which unite them, become inflamed; in consequence of this inflammation the ligaments become ossified, and there results the bony tumour on the inside of the hock which is denominated spavin.

This is always a source of pain and lameness at its first formation; but the continuance of the lameness depends on the progress of this bony growth, and its interfering with the action of the tendons. If it is found principally below, and does not spread towards the front of the joint, the bony tumour may acquire a very large size, and not produce lameness. The continuance of this exemption from lameness, however, will be very uncertain; for no one can tell, when this habit of throwing out bony matter is once established, what direction it will take, or what mischief it will effect.

No treatment however can be hoped to cure bone-spavin. The joint which nature has locked up, no drug can be expected to set free. This fact being perceived, the attempt is to limit and confirm the abnormal deposit. For this purpose, after the inflammation has been abated, a little of the iodide of lead ointment, one drachm to the ounce of lard, should be well rubbed into the enlargement thrice daily.

A singular, and yet sometimes an effectual way of relieving, and of frequently removing the lameness of spavin, is putting the horse to the plough. The slow

action of the limb in ploughing can be borne without very great pain ; at length ossification being perfected, the parts become fixed ; and the leg is subsequently used without pain.

The farrier once used to have recourse to the chisel and mallet in order to remove this and some other bony productions ; the spavin was sometimes punctured with the awl, or perforated with the gimlet ; but this, in the great majority of cases, only added to the inflammation ; and thus aggravated the evil which was previously disabling the limb ; moreover, the tumour is somewhat too close to important vessels for ignorance to interfere with it.

OCCULT-SPAVIN.

In some cases there will be lameness clearly referrible, by the action of the horse, to the hock ; but it will be unaccompanied by any external bony enlargement. The cause of this was long unsuspected : at length it was recollected by Mr. Godwin, that the joint consisted of several bones, having some slight motion upon one another, each bone being invested by its own synovial membrane, so as to form a separate perfect joint ; wherefore it began to be suspected that the concussion which excited inflammation and ossification, might produce injurious effects on some of these little, but complicated joints. The examination of some horses after death that had laboured under obscure lameness in the hind leg, set the matter in its proper light ; for there was found, deep in the internal part of the hock, inflammation of the membranes of these little joints, going on to caries of the bones, without any external appearance to indicate such an

affection. In other cases equally obscure, the same diseased appearance has been found in the upper joint of the hock, in which the principal motion takes place.

It is of the utmost importance to distinguish between bony and occult-spavin. The first can be relieved so as to render the horse serviceable to its owner; but the last is too frequently unaffected by any means which science has hitherto discovered. In bone-spavin the horse comes out of the stable stiff, but after a little while the action becomes freer; he may be a little lame at first, but when warm he grows almost sound. The horse suffering from occult-spavin comes out lame, and becomes more lame every step he takes. The lameness is excessive—it is always present; the animal continuously rests the limb, and exerts himself to cast no weight upon it. These peculiarities distinguish the two diseases; which resemble each other only in the circumstance, that during either the horse does not raise the leg freely, but scrapes or strikes the toe against the ground. The two, however, are well separated by the one being accompanied by a bony enlargement, and the other exhibiting nothing of the kind; and also by the lameness in the one instance being generally relieved by treatment, while in the other case the evil too often remains unaffected, however energetic may be the means employed for its removal.

In occult-spavin, there being ulceration and loss of substance upon the internal surfaces of the lower bones of the hock joint, we cannot hope to heal the lesion, which is deeply seated, and far beyond our reach. Ulceration, however, is the result of chronic inflammation; therefore, could we so aggravate the disease as

to render it acute, instead of loss of substance, we should have bone deposited; and by means of this the ulcerated surfaces would become united. Some portion of the freedom of the joint would be lost; but the pain would depart. The bones which before were diseased, and at every step grated upon one another, would grow together and form a solid body; this is that which we seek to bring about.

On no account should the horse thus diseased be turned to grass, where every bite necessitating a fresh step, the infirmity must be aggravated, and the animal's pain be rendered incessant. No; let the animal be placed in the stall of a stable, where it may almost stagnate. Rest is the best medicine; but at the same time the food must rather be increased than in any way diminished. The hope is to promote general fever, and thus end the ulcerative action. The hock must be blistered constantly; one-half of it being always kept in a state of vesication; thus the outer side is first blistered; and when that seems to be getting well the inside is blistered; after which the outside is again attacked; and so on for many months. This is done merely to assist the osseous process, by drawing blood toward the joint, and even tonics will be of service.

It may be half a year before any improvement is seen; and then a like period may elapse before the animal is put to work, or before it can be put to fast work.

ENLARGED HOCK.

Either from inflammation among the small bones of the hock; from debility threatening farcy; or from

external violence, the whole of the joint occasionally enlarges, accompanied by much heat and acute lameness: by the application, however, of proper means, the heat and lameness are removed. These means consist of continual rubbing in of soap liniment; followed by tonic balls; gentle exercise; and good prepared food. If the enlargement of the hock is permanent the horse should be regarded with considerable suspicion. He may be capable of common work; but he will often fail if much extra exertion is required from him, or he may suddenly be attacked by the acute form of farcy.

CURB.

This is most frequent in young horses, whose joints have not attained their full strength. A young horse goes out of the yard perfectly sound; he gallops over heavy ground; he leaps a fence; he is pulled up and thrown upon his haunches; or he makes some sudden exertion and he immediately becomes decidedly lame in one of the hind legs. Upon being closely examined, there is found to be great tenderness at the hinder part of the hock, five or six inches below the point of it; and in a few hours afterwards is seen an enlargement at this place.

The first object to be effected is to remove the inflammation. A high-heeled or patten-shoe should be placed upon the foot, so as to throw the weight off the affected part; the hock should be bathed with the solution of the tincture of arnica; at the same time, if the lameness is very acute, a dose of physic should be given, and absolute quietude be enjoined.

In three or four days the heat, which always in the first instance accompanies curb, will probably have subsided, and the lameness almost have disappeared; but there will remain a slight enlargement of the part.

Soothing applications are by inflammation indicated, and cold water is not the least operative, and assuredly is the cheapest of all these; but after the heat and tenderness have disappeared a blister may be beneficial. In some cases the enlargement continues in spite of our most energetic endeavours to remove it. It should, however, in all such instances be remembered that, although the enlargement of curb will occasionally remain for several months in despite of the blister, it disappears as time progresses. Curbs, however, are apt to return if the horse is sent to work too soon; and it is almost now an established fact, that the predisposition to throw them out is hereditary.

SWELLED LEGS.

This is a frequent and a most troublesome complaint. The cause is often exceedingly difficult to detect; and the disease becomes so inveterate, that the practitioner has little prospect of completely eradicating it.

The fore-legs occasionally enlarge; but oftener, and to a much greater extent, the hinder ones are disposed to increase in size. A horse is sometimes left in perfect health at night; and is found, on the next morning, with one or both hind legs enormously enlarged. The skin is tense and glistening; it is hot,

and upon the inside of the thigh exceedingly tender. The horse cannot bear to have it touched; he catches up his leg suddenly; the limb moves as if the lower part of it had no joint; and in the convulsive effort to snatch it out of reach, the animal not unfrequently loses his balance, and falls on the examiner.

This complaint, which is known by the name of "*weed*" in many parts of the country, is evidently a sudden and a very intense inflammation of the cellular tissue. A considerable degree of general fever often speedily follows; the pulse quickens; the mouth is hot; and the horse is entirely off his feed. Horses of the coarser breeds are peculiarly subject to this; especially if, after being regularly worked, they are suffered to stand in the stable, unattended to and unthought of during the whole of Sunday.

This apparently formidable species of swelled leg readily yields to proper medical treatment. The leg should be frequently fomented with warm water; tonics at the same time should be given, or the tonic and diuretic medicine may here be of service. However, this affection is a warning that farcy is approaching, and the work should be lightened while the food provided is also improved. Too much labour upon green meat only will produce "*weed*." The swelling, however, having subsided, and the tenderness having gone off, the legs should be well rubbed, and then lightly bandaged; gentle exercise should be used, for the disease is apt to return.

If an old horse, or a young one that has been over-worked, is suffered to stand a day or two in the stable, his legs often fill, but without pain or heat. The legs

of some horses regularly swell every night. This is connected with debility, either general or of the part. The case must be considered very attentively before any measures are adopted. The horse may be too highly kept; then mild diuretics; regular exercise; tonics; hand-rubbing and bandages will be the proper means to be adopted; decreasing a little the quantity of food and giving oats with a few ground beans will afford relief. The use of the bandage is an excellent thing in these cases; and has often gradually strengthened the vessels of the part, rendering the leg eventually fine.

Frequently an enlargement of the leg is connected with general debility. The horse is recovering from serious illness; or he has been half-starved; or he is generally weak and the weaker parts, where the blood circulates most feebly, naturally yield. A daily malt mash should be given; a fair allowance of corn, with a few old beans; carrots, if they can be procured; gentle and regular exercise; small doses of cantharides, varying from three to five or six grains, and a few tonic diuretic balls (Recipe, No. 35, p. 126), while the work is decreased. Every thing should be done to increase the strength of the system generally; and the vessels of the extremities may ultimately regain their proper tone.

This treatment will be particularly proper if the legs swell at the spring and fall of the year. The horse is then shedding his coat; a process which is always attended with some debility. Tonic balls will here be exceedingly useful.

In every case, however, of swelled legs, a great deal

more depends upon management than on medicine; and there is nothing so likely to be injurious as the frequent use of diuretics, of which many grooms are particularly fond. The staling-ball of the stable is the fruitful source of debility (the worst cause of swelled legs): it first weakens the urinary organs, and loss of tone in the system generally succeeds.

GREASE.

This is irritation of the skin and glandular structure of the heel. It may be traced to various causes. One of the most frequent is washing of the heels when the horse comes in from work. He is hot all over, and the heels are as hot as any other part; but the harness is scarcely taken off, before cold water is sluiced plentifully over the legs, under the notion of clearing away the soil that hangs about them. That could be excused, if the wetted legs were rubbed thoroughly dry afterwards; but the groom has too much to do, or is too idle to undertake this: he, perhaps, sponges off a portion of the wet, but he leaves on a great deal more; and the cold process of evaporation is immediately established. There is hardly anything so debilitating, or so likely to induce an unhealthy irritability; and it is the prevailing cause of grease.

Washing the heels should be strictly forbidden in every well-regulated stable. After the horse has stood a quarter of an hour, during which time the groom may be employed about the harness or some of the arrangements of the stable, a great deal of the dirt will have dried upon the leg, and may be easily brushed off. An hour after that the rest may be

brushed away; and a little hand-rubbing on the following morning will restore the part to its customary cleanliness.

When the vessels of the heel are weakened by the absurd system of washing, let it be supposed the parts are exposed to the common exciting causes which confirm irritability; the horse stands in a hot stable, with a draught of cold air continually blowing upon his heels; he remains day after day in the stable unexercised, until he has swelled legs; and he has generated in his system a tendency to disease, which is naturally ready to settle in the weakest part.

Even under careful management, the hind heels are, and must be weak parts. They are farthest from the centre of circulation: the fluids have up-hill work to return from the legs. If all such things are taken into consideration, the prevalence of grease needs not to be wondered at.

It assumes different forms in its different stages; but at first it is simple irritation of the skin and glandular structure of the heel. The heel becomes red, itchy, dry, and scurfy. The natural suppling secretion from the glands is partly suppressed; while that of the cuticle is increased.

If warning is taken in time, the complaint is easily arrested. No effort must be made forcibly to separate the scurf from the skin beneath. There must be no excoriation, or soreness, if it can be avoided. The part must be kept constantly bathed with animal glycerine one part, water two parts. This lotion, if applied to the skin, and not wasted upon the hair, will speedily remove all scurfy annoyance.

The following ointment should then be rubbed on the heel morning and night.

RECIPE (No. 56).

Ointment for Scurfy Heels.

TAKE—Acetate of lead, two drachms;
Lard, an ounce.

Rub these well together, until they are thoroughly incorporated.

This will soothe the irritability of the skin. A mash should be given every night; a tonic ball twice in the week; green meat should be allowed; and every exciting cause of grease removed.

Possibly the irritation may have proceeded somewhat farther; the scurf may have been suffered to accumulate: it becomes hard and brittle; it cracks then fissures soon extend across the heel; while a thir discharge moistens the surface.

Here no certain plan can be laid down; but the practitioner must be guided by the depth of the cracks and the general appearance of the heel. The first thing, however, to be done is to get rid of the scurf by means of the lotion just recommended. If the cracks are superficial, an attempt should be made to dry them up; and a lotion will be most conveniently employed for this purpose. Fortunately, we have at our command an agent which will act beneficially in two ways. The chloride of zinc will not only destroy the stench which accompanies the exudation, but it will also heal the cracks from which the moisture proceeds.

The first application should consist of, chloride of zinc two drachms, water one quart. This strength may do for general cases, but many animals will re-

quire a wash in which one ounce of the chloride is dissolved in a quart of water, while for others a solution even of the first-named power will be too strong. In this matter the practitioner must exercise his professional judgment.

It will occasionally happen, there is at first so much irritation that it will be necessary to allay it before the cracks will heal. For this purpose, a poultice into which charcoal and yeast largely enter will be found to answer admirably.

The inflammation having been somewhat subdued, and the cracks beginning to look healthy, the practitioner should employ the lotion. This should be applied morning, noon, and night.

If much swelling should remain around the pastern and fetlock, or extend up the leg, a bandage moistened with the weaker lotion, and not too tightly applied, will be serviceable. The lotion should also be thrice daily applied to the swollen part.

There must be neglect if grease proceeds farther than this; and yet there are too many cases in which the heels assume a dreadful appearance. The cracks disappear; or rather, as they seem to fill up, the disease extends, while one continuous oozing and soreness spreads over the pasterns and fetlock. Fungoid granulations start from different points; they increase; they unite; and there is an irregular protruding surface, sore, and bleeding at the slightest touch. Some parts hardening, they are covered with scabs; or sometimes with a spurious kind of horn. The irregular surface by degrees assumes the form of knobs, running in lines, which often bear an indistinct resem-

blance to a bunch of grapes: hence they are technically called "*grapes*." A strangely mingled discharge runs from the greater part of the surface and smells most abominably.

Such a condition the disease could not have reached had our previous directions been attended to. The chloride of zinc effectually cleanses the heels, and prevents all spurious granulations. There must, therefore, have been sad neglect, where the grapes are ever witnessed.

Severe measures alone will be of avail here; it is generally the best practice to proceed to the cautery at once. The scabs and the spurious horn should be removed with a knife; and then a flat-iron heated, or rather rendered very warm, should be run over the bleeding surface.

The part should be thrice daily washed with the solution of chloride of zinc, of that strength which agrees with the animal; and even cloths moistened with the liquid may be kept round the legs. The food at the same time should be nutritive; but by no means bulky, and above all things easy of digestion. The horse ought to take all the exercise he is capable of sustaining; for nothing promotes healthy circulation like gentle motion.

A horse, however, that has once had an attack of grease like this will be very subject to a relapse; great care should, therefore, be taken not to expose him to any of the predisposing causes. No water should be suffered to go near his heels: he should be well but not over fed; a mash should be occasionally given; also carrots and tonic medicine.

CHAPTER XXX.

THE STRUCTURE AND DISEASES OF THE FOOT.

THE diseases of the foot are those of most common occurrence; and the treatment of them is often most tedious and difficult. They cannot be perfectly explained without a slight sketch of the structure of the foot being first given.

The foot of the horse is composed of a horny box, and its contents. The horny box is called the hoof; the portion of it which is visible, when the foot is on the ground, is the crust; beneath are the sole, the bars, and the frog.

The crust has its lower edge resting on the ground; and as it ascends it takes a direction obliquely backward. The degree of obliquity is very different in different horses; much of the usefulness of the animal depends on its taking a proper direction. A comparison of different feet has taught the horseman that about 48 degrees of obliquity are most consistent with soundness and usefulness. If a greater inclination of the foot than this is displayed, so that the crust forms an acute angle with the sole, it is an indication of weakness in the part. A too oblique direction of the hoof is accompanied by flatness of the sole, or possibly by pumice foot.

On the other hand, if the crust is not so oblique as it ought to be, but is becoming to a greater or less degree upright, distress of another kind is indicated. The heels are growing narrow; and there possibly may be navicular disease.

When the crust is removed there are seen numerous little projecting vascular lamellæ, or plates, running parallel with each other from the coronet to the sole, over the whole of the outer pedal surface. Corresponding with these are similar horny projections, or plates, springing from the interior substance of the crust, which are of lighter colour and less brittle nature than the horn of the coronet.

The crust diminishes in height and thickness as it proceeds backward. Where it gains the sides it is distinguished by the name of the quarters; being called the toe in front, the quarters at the sides, and the heels behind. Great attention should be paid to the quarters, in all examinations of the foot. If the crust decrease too much and too rapidly in height, a weak foot is indicated—an inability to bear much rattling on the stones, and a greater liability to being pricked in shoeing. Such a horse is said to have *low* heels. If the decrease in height is little and slow, the horse is said to have high heels; and generally has contraction, chronic thrush, or navicular disease.

The crust, being still continued backward from where it forms the heels, turns round and takes a direction again forward upon the sole, along the outside of the frog. However, the continuation of the crust upon the sole assumes the name of *the bars*. Such continuation and projection of the crust is erroneously considered an important part of the foot. It used to be regarded as one of Nature's protections against contraction; and the farrier who did not know anything about these suppositions, in order to give an appearance of openness to the foot, frequently cut the

bars away altogether. This practice was by the Veterinary Surgeons of the old school denounced as the height of barbarism. The cruelty of, and the lamentable consequences which were sure to follow such an act, were alike pathetically dwelt upon. However, it occurred to some modern practitioners to try the evil which their fathers had declaimed against: and those who made the trial have been so much pleased with the result, that they now pare out the foot without paying the slightest attention to the bars.

The heels turning inward, would leave a considerable chasm, were it not for a wedge-shaped horny substance called *the frog*. Its office is to afford protection to a tendon above; on which the navicular bone rests—also by its shape, and its point projecting forward, to give a degree of security to the tread of the horse; and by its elasticity to give spring to the movements of the animal.

The sole covers the larger part of the base of the foot.

Within the hoof is *the pedal-bone*, or principal bone of the foot. It is fitted into the fore-part of the crust; and occupies rather more than half of the entire space within the hoof. A small portion of the lower pastern-bone is also found within the horny box; which, resting upon the *bone of the foot*, helps to constitute *the coffin-joint*. Interposed between the coffin-bone and the outer crust is a substance, adhering firmly to the coffin-bone as well as to the cartilages, and terminating in numerous little plates. These plates, before alluded to, secrete and consequently firmly adhere to, and are continuous with, the horny plates of the crust. The weight of the horse is chiefly thrown upon

these plates; and they are of service in preventing that concussion which, if unopposed, would speedily destroy the whole mechanism of the foot. The union of the horny and membranous plates gives strength; while the yielding of both substances affords elasticity to the motion.

The construction of the back of the foot is more complicated. The pastern takes an oblique direction backward. This obliquity is designed also to obviate concussion; it varies the different directions of the force. In the blood-horse the tuft of hair at the fetlock will often be in contact with the ground; giving easiness of motion to the whole machine. The long pasterns of the race-horse suit the springiness of his action and the length of his stride; the medium obliquity of the pasterns of the hunter is adapted to the occasional speed and the untiring endurance which are required from him in the field; and the comparatively upright position of the pasterns in the road-horse fits him for his daily task. There is, in the last animal, sufficient obliquity to insure some pleasantness of action, but not enough to endanger the continuance of the pace.

The two principal of the flexor tendons, the tendons by which the leg is principally bent, run along the back of the pastern-bones. One of them is continued low down, and is inserted into the sole of the coffin-bone. There must be a great deal of motion and play in this tendon, with an equal exposure to injury; and the back of the foot presents contrivance to prevent the mischief that would otherwise certainly ensue. First, there is the *navicular-bone*, situated behind the coffin-bone; with the lower pastern-bone completing

the coffin-joint. It is united to both; the tendon and the bone being joined to it by ligaments: and below the navicular-bone presents a free polished surface, under which the tendon plays. The navicular-bone partially yields with every motion of the tendon; thus preventing a great deal of that concussion which must otherwise have taken place, had the tendon sharply turned over a fixed bone, in order to be inserted into the coffin-bone.

The navicular-bone, when the pastern presses upon it, descends; the tendon descends with it, and there is much weight pressing upon both. Then there is interposed between the bottom of the foot another highly elastic substance, which is destined to receive this pressure and yielding as it receives it, obviates dangerous concussion:—the *internal* or *elastic frog*—upon the cushion on which the tendon and the navicular-bone rest.

This is the important function of the internal frog; but there is another quite as valuable. The horny covering, which envelopes the foot of the horse, from its very nature may occasionally subject the foot to considerable pain and inconvenience. It contracts when exposed to dryness or heat. The feet of our stabled horses are too liable to injury from this source; and there is the fetter of the shoe, which still more disposes the horn to contraction. But above all is the stagnation to which our stabled horses are doomed. Throw a part out of use, and it will very speedily become absorbed.

The elastic frog yields to the pressure of the descending tendon and navicular-bone; how does it yield—can it be squeezed into a smaller compass?

No. It however shifts its situation. It presses upon the sole; and the sole being naturally concave, flattens; and thus expands the lower part of the foot. When the weight is taken off, in raising the foot, the sole ascends with a kind of rebound; and the frog ascends too, with the same kind of springy action, and forces itself against the lower part of the tendon. Thus the lower part of the heels are expanded by the descent of the sole; and the upper part by the elevation of the frog.

To assist in this, there is another elastic mechanism, placed on the upper part of the side of the foot; *the lateral cartilages*. These receive the pressure of the frog; they receive it without concussion or shock, and they increase the expansive effect. A horse soon becomes lame when these cartilages are inflamed, and turn into bone.

BRITTLE HOOF.

This is a very serious inconvenience with some horses, especially in hot and dry weather. The hoofs chip away at every shoeing; until at last there is scarcely nail-hold, and the farrier is compelled to take a great deal more care, than smiths in general will take, to avoid pricking the horse.

This brittleness of the hoof is a natural defect in some horses; but in others it is brought on by utter neglect. In such cases every care is necessary; and often all that can be done is of little use. In the majority of instances the horse will be required to work on; and then the best efforts must be used to limit the mischief as much as possible. For this purpose both stopping and dressing must be applied to

the hoof. Water in cases of this kind does harm. It moistens the horn for a time; but afterwards it dries, and the hoof becomes more brittle than it was before. Equal parts of tar, animal glycerine, and soft soap, well mixed together, will make a good stopping; which may be spread on tow, and retained against the sole by splints.

Cow-dung stopping, with a small portion of clay in it, to give it consistence, will never be found useful as an application to sound and healthy feet; as its continuous employment does injury. Linseed meal made into a paste with water, is more cleanly and less drying; but if the linseed be moistened with the following liniment, instead of water, its effects will be increased, and the horn will be benefited.

RECIPE (No. 57).

Suppling Liniment for the Feet.

TAKE—Oil or spirit of tar, a pint;
Animal glycerine, a quart.
Mix them together.

After the feet are cleaned out when the horse comes from his work, let the paste, made as directed above, be plastered over the sole; and the next morning be removed before the horse is taken out of the stable. The quantity required will not be large; and the same portion will, with very little care, answer several occasions. At the same time that the feet are stopped, the hoof may be dressed; which is soon done, by simply dipping a brush into the liniment when it is unmixed with any linseed, and well rubbing it over the whole of the crust. This will tend much to preserve the natural pliancy of the horn; and at the same time will very considerably increase its growth.

SAND-CRACK.

Connected with brittleness of the hoof, and usually produced by it, is a fissure or longitudinal crack in the crust. It may be produced in a moment—one false step may cause it; but the predisposing cause is brittleness of hoof. Sand-crack usually takes place, either at the weakest part of the foot, or where there is most stress and pressure; therefore it is oftenest seen upon the inner quarter of the fore foot. In the hind foot the sand-crack is most frequently at the toe; for there is the principal stress in the act of drawing heavy loads. Occasionally it begins at once from the coronet; but sometimes it is first perceived about the middle of the hoof.

The slightest appearance of sand-crack should be attended to. It uniformly begins from without, and penetrates inwardly: it may therefore sometimes be arrested in its progress while it is merely superficial. Whenever there is a sand-crack, no matter how long or short, how shallow or deep it may be, it must be cut out. The drawing knife must be used till the very bottom of the crack has been gained. The side of it having been removed, so as to make what once was a fissure a broad groove. If the crack does not reach from the top to the bottom of the crust, a line should be deeply drawn with a sharp firing-iron, above and below it; so as to prevent the crack from spreading in either direction.

If lameness accompanies sand-crack, the fissure has penetrated through the horn to the sensible parts; either gravel has insinuated itself, which is giving

pain; or a portion of the sensible part beneath has protruded between the sides of the crack, and it is there pressed and confined. The crack must now be searched to the bottom. The sides must be pared down; and then, the fissure being freely open, the sprouting granulations must be excised, and a poultice must be applied to soothe the irritation and bring away any sand which may have got into the crack. When the dirt or gravel has been removed, and the imprisoned laminæ been liberated; a small piece of tow, dipped in the weaker solution of chloride of zinc, must be introduced into the crack and bound firmly upon it; while a bar shoe, with no bearing upon the seat of injury, but a clip on either side of the crack, is placed upon the foot.

Unless the crack is very slight, the horse should be rested for several weeks. If the fissure extend from the top to the bottom of the crust, a stimulating liniment or mild blister should be applied to the coronet, to quicken the downward growth of horn. As soon as there is sufficient new horn above the crack, one or two transverse lines should be drawn with the firing-iron upon it; so as to cut off the communication with the diseased horn: a little melted tar and pitch covered with tow may then be applied to it, and a strap buckled tightly round the hoof. A bar-shoe of the description before mentioned should be put on; and then if the horse is much wanted he may go to very gentle work; but six or eight months' additional rest would be required to insure the sound growth of the new hoof, or to renovate the secretive powers of an exhausted nature.

In bad cracks there may, before the treatment has commenced, be a protrusion of fungoid substance. This causes acute pain and excessive lameness. As much as possible of the sprouting flesh should be cut off; the horn around pared thin, and a pledget of tow, moistened with the solution of chloride of zinc, or sprinkled with some powdered blue vitriol, bound as tight as possible upon the part. There will be some bleeding, but that should rather be encouraged than checked. A little pressure with the caustic will remove any remaining portion of the fungoid substance and also prevent its re-appearance.

The sand-crack being removed, care should be taken to prevent a return of it. A brittle foot requires every care to correct the natural harshness of the horn; hence the necessity of careful stopping at night, and the occasional application of the liniment to the crust or wall of the hoof.

TREAD OR OVERREACH.

This is a wound on the coronet or heel, caused in the fore foot by the hind one *overreaching* and wounding it; in the hind foot it is produced by the heel of the fore shoe being set down upon the coronet. The part should be punctured in two or three places; warm fomentations should be applied; or linseed-meal poultices. The contusion will often be so serious, that some degree of sloughing will ensue. In such cases poultices only debilitate the part, and promote fungoid growths. The weaker solution of the chloride of zinc, one grain to the ounce, will correct all foetor,

stimulate the injury, and encourage the healing of the wound.

If the coronet be cut through, it is often a very serious affair, and if neglected, or treated otherwise than is here directed, may lead to quittor, or to false quarter. The first thing to be done now is to apply the solution which has just been named, and if the secretive portion of the coronet is not destroyed, or the injury has not by neglect become a quittor, the evil will not increase under treatment.

FALSE QUARTER.

Either from neglect of sand-crack, or from the too brutal use of the firing-iron, there often happens a slough of the coronet; whereby a portion of the surface which secretes the outer table of the hoof is lost. The horn at this place being irremediably deficient, there will ever after remain a groove upon the outer surface of the wall from the top to the bottom of the hoof. This is termed *false quarter*. It is a very serious defect in the foot of the horse, and is never to be cured. The strength of the hoof is materially lessened; and this circumstance, by regulating the uses to which the animal shall be put, may lead to much annoyance.

In such a case it is hopeless to attempt a cure. The part which has been destroyed can never be restored. All that can be done is, to have the shoe well eased off, and a clip placed on either side of the groove; while the foot should be constantly dressed with the applications recommended for brittle hoofs. These mea-

tures will, in some degree, rectify the evil, and the horse may under such treatment be equal to moderate work.

CONTRACTION.

The foot of the horse, in its perfect state, approaches to a circular form. But he has scarcely entered our service before it generally begins to assume a more lengthened shape; becoming narrower every where, but especially at the heel. Some horses, however, have naturally narrow feet; and in them it is, therefore, hardly a defect. The contracted foot is one which has departed from its original shape—one which was broad and has become narrow; and, as this change seldom occurs in a like degree in all the feet, the best evidence of its having taken place is found in the fact of the hoofs being of different dimensions and shapes.

Contraction, however, is rather the symptom of disease than a disease of itself. The horn is secreted by the internal parts; and these internal parts must, therefore, be affected before the horn, which is their secretion, can be changed. When, consequently, the form of the hoof alters, we have outward evidence that the deep-seated structures are not healthy. But their condition may be aggravated by the state of the horn; in the same way that every disease may be rendered worse by the symptoms which it has produced, and which in their turn have become the causes of further evil.

To make this more plain I will narrate the history of a horse's foot. The animal is taken into the stable,

where it stands for many hours, during which in a state of nature it would be walking about in search of food, or playing with its companions. The foot is thrown out of use, and of course it dwindles; and, to make the consequences of inactivity more certain, the nails of the shoe render the crust unyielding, and cause the hoof to press upon the sensitive parts. Then the horse is suddenly saddled, and put to his pace with a load upon his back. The feet have to move rapidly over hard roads, and have to do this in tight shoes. Lameness often is the consequence; but the effect does not always mount to this height. Irritation, however, may be induced. The sensitive and secreting parts of the foot become irritable; and they pour forth more of that substance which it is their function to produce. The horny box is therefore thicker than it would be if the feet were healthy; and the additional thickness of the hoof renders it less yielding. In its turn the horn presses upon the parts within, and aggravates their irritability. Pressure is one of the most certain causes of loss of substance; and the foot, constantly confined and squeezed, becomes necessarily smaller. Thus, though contraction cannot take place without more or less disease of the internal parts; contraction, however, being once established, causes the foot to become yet smaller, or further diseased.

The foot of the domesticated horse requires constant attention; and we must here quote some excellent remarks contained in the work entitled "The Horse." "There is no rule which admits of so little exception as that which declares once in about every three weeks

the growth of horn, which the natural wear of the foot cannot get rid of, should be pared off; the toe should be shortened, the sole should be thinned, and the heels lowered."

The heat of the stable, and the fettering of the shoe, will increase the disposition to contraction; but the main cause of it is disease of the internal part of the foot, however produced.

It is easy to conceive that when the foot is rested in the stable and the horse favours it by going lame, the want of the natural pressure must speedily occasion still further contraction. The disease with which it is mostly connected is the navicular-joint disease, which remains to be considered.

The treatment will consist in removing the causes of contraction. Should this be ascertained to be produced by general irritability, inducing a fumbling gait, rather than a downright lameness, something may be done, providing the owner is willing to make the trial. The sole must be pared all round, until the blood starts as from so many little pin-holes. The strength of horn must be weakened where the pressure is greatest. Carefully avoiding to wound the coronary ring, the quarters must be well rasped.

When evident, but too often temporary, relief is thus afforded; tips should be tacked on; while the horse should be allowed a loose box and never forced to stagnate in a stall. There, he should remain until the quarters are grown down; his sole pared cut and his feet generally attended to once in three weeks, and his food consisting of the very best.

If the case is not sufficiently severe to require or to

warrant the loss of the services, the feet should be treated as is proposed for brittle hoofs, the stall of the stable being at the same time avoided. The suppling liniment for the feet (Recipe No. 57, p. 260) should be daily used, and an unfettered shoe (a shoe nailed on the outside and with only one nail beyond the toe on the inside) should be applied. This shoe will be sufficiently secure under any moderate work that should in ordinary cases be required from such a nag, and will leave the inside quarters at liberty to expand.

The shoe with a joint at the toe is worse than useless; for the stress on every nail soon breaks away the lower part of the crust from the foot. The shoe with a clip at each heel, to prevent its wiring in, is also pernicious; for the process of contraction will still go on, and the clip will eat into the foot, and be a source of the most frightful corns. More injurious still were those screws by which it was attempted mechanically to force the heels asunder. Nature rebels against this violence; inflammation is excited tenfold greater than that the screws were intended to remove. In the work contraction is hastened, or, if the heel yields for a while to the force which is used, it necessarily does so at the expense of some lesion within, which announces itself by desperate lameness.

INFLAMMATION OF THE LAMINÆ, OR FEVER IN THE FEET.

Proceeding to the diseases of the parts immediately within the hoot, "Inflammation of the Laminæ" first presents itself.

When it is recollected that the laminæ, which connect the hoof to the coffin-bone, have chiefly to sustain the violent concussion to which the feet are exposed when in rapid action ; it will not appear surprising that intense inflammation of these parts sometimes ensues. Besides this, there is no structure in the body of the horse so exposed to other causes of inflammation as the foot. After the animal has been ridden far and fast, while he is reeking hot, he is occasionally plunged up to his belly in the nearest pond or river. Almost every groom immediately washes the feet of his horse ; while very few of them will take the pains carefully to dry the dripping members. What is so likely to follow as inflammation ? A horse may have been travelling many a mile up to his coronets in snow ; and when he arrives at his journey's end, instead of having the warmth gradually restored to his feet by half an hour's good hand-rubbing, he is put up to his knees in straw ; or his legs are immersed in warm water. Is it not reasonable to expect that fever in the feet will follow this sudden change of temperature ? In other cases, there may be a metastasis or change in the place of inflammation : the animal is recovering from inflammation of the lungs, and suddenly the feet are attacked, and that without any fault of the Surgeon or of the groom.

Inflammation of the laminæ can scarcely be mistaken. The horse is continually shifting his posture ; yet without any violent action. The feet are constantly moving ; but they are moved as gently as possible. When the hand is passed down to them, the heat of

the hoof is evident enough. The fore legs are protruded, and the hind legs are brought as far as possible under the body. The feet although in motion are never placed flat upon the earth; but the wretched animal having laminitis ever rests its weight upon the heels. All the characteristics of general inflammation are exhibited. The pulse is hard and fast—the breathing sharp and quick—the skin harsh—the mouth hot; and the ears cold. But there are also signs which indicate the seat of the disease; for, besides the hoofs being unnaturally hot, the arteries of the legs throb, while the horse often points to his feet as the seat of pain, by looking at them, and resting his muzzle upon them.

The treatment of inflammation of the feet must be prompt.

Other inflammations may possibly, to a certain degree, brook delay; but here not a moment must be lost. The inflammation *must, if possible, be made to terminate in resolution*; for, if pus as a natural product of inflammation is thrown out within the foot—the hoof will inevitably come off.

Without a moment's delay the horse must be bled; and there is dispute concerning the best place to abstract blood from. Some recommend taking blood from the toe; but it is not always safe to wound a part during the existence of acute inflammation within it. The jugular should be opened, and the stream allowed to flow till the aspect of the horse improves. If in five or six hours the pulse regains its inflammatory character, the coronet may be punctured in several

places; yet it should be remembered that repeated depletion retards the recovery, and is apt to convert an acute into a typhoid disease.

A full dose of physic should be administered; and injections should be thrown up to quicken its action. Sedatives and febrifuges combined should also be freely given; not only to allay the general fever, but also to subdue the vascular excitement as well as to deaden the pain. The following ball should be repeated every second hour until the pulse intermits, or the gums become tender:—

RECIPE (No. 58).

TAKE—Powdered aconite root, a drachm;

Opium, two drachms;

Calomel, half a drachm;

Colchicum in powder, a drachm;

Emetic tartar, half a drachm:

Make into a ball with treacle.

We would desire to do something to the feet, but generally the horse obstinately stands and will not suffer them to be raised or touched. If the shoes *can* be removed, they ought to be taken off; and the soles, should it be possible, be pared. The feet then should be put into poultices; or constantly fomented. If, however, the horse resists, these things had better not be attempted. Cloths wetted with glycerine can be placed upon the legs; and these can be kept constantly moist with the preparation. The straw should be removed; and its place supplied with damp tan; or even sawdust, which may be moistened, and will be less heating to the animal's feet. The body should

be clothed—a sheep's skin placed upon the loins. Even if the horse will eat, only a few spare bran-mashes should be allowed ; but whitened water or thin gruel ought to be constantly before him.

When the acute symptoms abate, the coronets and legs may be blistered ; but this ought not to be done until the *acute* stage has passed. The entire leg should not however be subjected to the vesicatory, for after laminitis we desire the effects of the blister should last some time. Therefore, blister the outsides first, and the effect having ceased, blister the insides of the legs, and thus for any time the counter-irritating action may be kept up.

The practitioner will carefully look out for the worst symptoms, as well as those of amendment. When separation begins to take place at the coronet, between the hoof and the hair, it indicates that the process of suppuration is established by exudation. It will be useless further to punish the horse ; but some relief may be obtained by surrounding the feet with poultices. Another hoof will in process of time be produced ; but it will be smaller and weaker than the first, and more liable to accidents.

It is seldom that intense inflammation of any kind terminates without effecting some change of structure. Disunion to a very considerable extent between the horny and fleshy laminæ is a frequent consequence ; and the result of that is, that the coffin-bone is no longer retained in its place ; but sinks backwards and downwards. A malformation which no surgery can remove is the result. The sharp edge of the coffin-bone rests upon the sole, and often pierces through it.

This is an incurable state of the foot. Any attempt to force up the coffin-bone betrays ignorance of anatomy, and of the progress of disease. When the coffin-bone begins to recede from the crust, the hoof follows it to a certain degree; but its structure limits this, and another process commences. In order to fill up the vacuum, an unnatural quantity of plastic matter is secreted by the sensitive laminæ; the crust thickens, and inclines inward as the coffin-bone retires; it has sometimes been observed more than two inches in thickness. Nature is, as it were, attempting still to maintain the union between the parts.

What power applied to the sole can force back the coffin-bone, pressed upon and kept down by this thickness of horn? Or what power can be applied to the external sole without bruising the internal and sensitive one? Lameness, which no art can relieve, ensues; it is lasting and incurable. The horse should be destroyed; but many animals in this state are forced to do slow work; and, by the whip, compelled to move in agony.

Lameness also appears in a chronic form, but is always distinguished, no matter in what state it may exist, by the peculiar manner of going which it induces. The horse having had inflamed laminæ, but with the feet left sensitive by the disease, endeavours to cast all his weight upon the heels; in order to spare, as much as possible, the wall with which the diseased part is connected. The gait is peculiar, and the toes pointing upwards denote the condition of the animal.

Chronic, or rather sub-acute laminitis, is never the

consequence of the acute disorder ; it comes on gradually ; and is at all times difficult to remove. It comes on insidiously, and is too often not remarked until the disease has terminated in dropping of the coffin-bone, and permanent lameness is established. Tonics, carefully prepared food, warm water to soften the horn, with a long rest, are in this disease the chief measures indicated.

Laminitis may appear in one or all of the feet.

Most frequently the two fore feet are attacked ; and the animal then brings his hind legs under him, as much as possible, with the intention of taking the weight from the affected members. When only one foot is attacked, the other is always the seat of poignant lameness, and what once was the healthy limb, ultimately becomes the most diseased ; because the animal, to spare the lame leg, continually casts his whole weight upon the sound one. The horse with laminitis in one hoof should be destroyed immediately. With all four feet attacked, he may lie down and may recover ; but, when the disease appears in one only, he has no chance of being relieved ; and it is mercy to shorten his sufferings.

PUMICED FEET.

The sole is naturally concave or arched ; but too often, under our improper management, it becomes flat ; not unfrequently, it becomes at last globular ; swelling out and presenting a convex surface towards the earth. Heavy horses, bred on marshy land, generally have weak flat feet ; and when put to work upon the road, the battering which the hoof is obliged

to endure naturally affects the sole. The irritation causes the coffin-bone to enlarge and bulge outward; while the secretion of horn, being originally weak, affords the sensitive sole but little protection. The wall becomes brittle, and also thin; the sole is likewise thin, but generally soft; the frog alone is always healthy, being large, and amply covered by elastic horn.

No art can restore the foot to its natural state; but the horse thus affected may, with care, be rendered serviceable. A blister to the coronet with the constant use of those applications recommended for brittle hoof may cause a stronger development of the horn, and thus procure for the smith a better hold for the nails of the shoe. The sole must never be pared out; but the ragged portions should be alone removed with the knife. Some persons, when the shoe is taken off, let the horse for some hours stand upon a level pavement; but there is little benefit gained by this practice. The shoe is of all importance. It should not be a bar shoe; but what is termed a dish shoe—that is, a bar shoe with a wide web, so hollowed out, as to suit the unnatural figure of the foot. The web must be broad, in order to protect the sole; and the bearing must be entirely upon the crust and frog. The shoe must likewise be strong enough to protect the foot; though, at the same time, it ought to be as light as is compatible with the degree of strength required to do this effectually. The nails must be placed wherever a hold can be obtained; and there must be no complaint made if the smith should gain some purchase even by fettering the heels. In

cases of this kind, the farrier has seldom much choice ; but he is obliged to obtain his hold at any part into which a nail can be driven with safety.

WOUNDS IN THE FEET.

These are generally caused either by pricking during the driving of nails in shoeing ; or by sharp substances upon the road over which the animal travels. If discovered in time, they are very easily managed ; but if the process of suppuration has commenced before the injury is attended to, the cure may be tedious, and not always certain.

When a horse is pricked or stubbed, the farrier pares away the horn to the very bottom ; and then sometimes places a bit of tow, wetted with spirits of turpentine, on the part, and sets it on fire ; but, if he has fairly laid open the wound, the case may do well were the fire not subsequently applied ; for should the flame burn the internal parts, the intended specific will assuredly produce all those consequences which it was meant to prevent.

It is indispensable that the wound should be freely opened, by cutting away the horn, *to the very bottom* ; and then, if a bit of tow, dipped in tar, be put on the wound, and a little more tow on that, and the whole is confined by a firm pressure, the puncture will generally heal ; or should it have been more than ordinarily severe, the foot may in the first instance be placed within a poultice.

When the dressing is removed on the following day, the wound should be carefully examined all round

with the finger-nail; in order to discover whether there is any separation between the horny and sensitive sole, which either had escaped the first examination, or which has since become disunited. If it exists in the slightest degree, the separated part must be carefully and thoroughly removed;—and this caution must be observed at every subsequent dressing. If there is one thing of greater importance than another, in the treatment of wounds of the feet; it is to remove every portion of horn that has ceased to adhere to the fleshy part beneath. Union can never be re-effected; but the horn thus detached will remain as a foreign irritating body applied to the sensitive or secreting surface of the foot.

If it has been necessary to open round the original wound; the exposed surface should be very lightly touched with the chloride (butyr) of antimony, applied by means of a feather. A pledget of soft tow, shaped to the wound, and saturated with tar, should then be put upon it, a larger piece over that, and the whole confined as before with a firm and uniform pressure. There are few wounds over which fresh horn will not readily grow by means of this treatment.

However, it is not well always to disturb a dressing unless imperative. Therefore, supposing the symptoms to be satisfactory, the dressing had better not be removed for a week at least; or if the injury be small, and no indication of constitutional disturbance be exhibited, the dressing may not be interfered with until the next time of shoeing comes round.

QUITTOR.

Any injury which can cause the internal parts of the foot to suppurate may produce a quittor. Corn, overreach, tread, bruise of the sole, stabs of the feet, in short, as was before mentioned, any injury which could originate inflammation of sufficient energy to start up suppuration, will end in quittor. Pus is secreted; but it cannot escape through the horny wall, or very rapidly find its way through the fibrous substance of the coronet. The matter, thus confined, goes on increasing; and, as it must go somewhere, it causes absorption in various directions; wherever the parts are most yielding the pus penetrates, thus giving rise to numerous pipes or sinuses.

Pus has been thrown out; it has found its way under the crust, and among the sensitive parts. Irreparable mischief is sometimes done by this process. The most favourable state of the case is when matter breaks out at the coronet, soon after the lameness is perceived. But, occasionally, either the farrier has been very careless in his examination of the foot; or no notice has been taken of the lameness until the matter has burrowed in every direction; it has insinuated itself under the cartilages and ligaments, and into the interior of the foot. None but very general rules, therefore, can be laid down for the treatment of quittor; and no one but a skilful practitioner should be employed in such a case.

When suppuration has commenced, there is always great heat of the foot, and excessive lameness. The arteries of the pastern throb violently; while the heels

and coronet greatly enlarge. In such a case the shoe should be taken off; then the sole pared out till it is so thin that the blood begins to start. While this is done, the practitioner watches to discover if any portion of the horn is discoloured; and if it be, he cuts boldly down upon it. Should none of the horn be red, he feels the sole well over; and where it springs most under the thumb, or at the place where pressure produces most pain, he there makes an opening, and, in almost every case, matter is released. This done, and every particle of the detached horn removed, he places the foot into a poultice, and perhaps a few simple dressings afterwards may end the business.

In such a case, however, he will have anticipated a quittor, not have cured one. There can be no quittor until there are pipes or sinuses established; then the heel or the coronet may be tender, and the last considerably swollen. In the latter case he plunges the lancet into the most yielding point of the swelling; and, the matter being evacuated, he then tries the sole; and having evacuated the pus beneath it, he next endeavours with the probe to discover how many sinuses exist, and in what directions they run. If there should be a sore or wound, he does not stab the coronet; but all else he does in the manner which has been directed.

The great object is to ascertain the direction and extent of the sinuses; so as to form some opinion as to the probability of a cure. If the matter has penetrated deep through the cartilages, a cure is very difficult; if it has found its way into the coffin-joint, a cure is impossible. The probe, therefore, must be

carefully and tenderly used, in order to discover those important parts which may be involved.

The matter generally finds its way out at the coronet above one of the quarters; and frequently is released rather backward towards the heel. If the sinuses run backward, the practitioner has a fair chance of success, and may undertake the case with a hope of relieving it; but if they run forward and inward, he must conduct his examination cautiously, and hesitate before he delivers a decisive opinion. Here a knowledge of the anatomy of the foot will be indispensable.

This done, he will place the foot in a poultice and return the horse to the stable. The next day he will gently, or with every consideration for a painful disease enclosed in a very sensitive part, have the quarter rasped till every portion of the dark or superficial covering of the crust is removed. The horse is subsequently cast, and a small director passed down the sinuses. Along the groove of this instrument a sharp knife is slid, and thus one after another all the superficial sinuses are laid open.

The horse is then allowed to get up, and is once more returned to the stable. The wounds on the foot, for what once were sinuses are now converted into wounds, are dressed with the weak solution of chloride of zinc, one grain to the ounce of water.

On the following day the foot is again examined. Should there be nothing perceptible but a mass of creamy, thick pus, the part merely requires a continuation of the lotion thrice daily to perfect the cure; but if among the opaque fluid is seen a speck of dark,

transparent liquid, such is conclusive evidence that a sinus yet remains to be found out and operated upon.

Any flexible probe of small size is now employed. Force will not hasten but will retard the business. Gently explore towards the interior, observing the dark liquid just spoken of as a guide. The sinus being discovered, of course the foot cannot be cut further, and the knife be employed in the direction towards which the last sinus runs. It must therefore be treated with corrosive sublimate, mixed with flour, in the proportion of one part of the caustic to three parts of the miller's preparation. This mixture must be forced into the sinus, until the whole of the hidden cavity is full.

The horse will generally become very lame on the two following days, but on the third a curd-like matter will be discharged from the sinus, and the wound will rapidly heal.

After this fashion that which, when successful, used to occupy months is well over in a few weeks, but of course the horn is not restored so speedily; consequently the animal must be shod with a bar shoe well eased of the quarter in which a quittor has existed, and this kind of shoe will be necessary till the normal dark colour of the hoof is renewed.

BRUISE OF THE SOLE.

This is a circumstance of frequent occurrence; and of very little consequence, if timely and properly treated. A horse in rapid action may tread on a

sharp projecting stone; or a stone may have insinuated itself between the web of the shoe and the foot; all of these things will cause pressure upon and bruise the sole. The injured part may always be detected by the pain which the horse evinces when it is pressed upon.

The sole, over and around the tender spot, should be pared, until it yields to the pressure of the thumb. The appearance of the blood, should any start on the sole being thinned, will be a satisfactory proof that the bruise has not run on to suppuration. Should pus be present, let it freely out; remove all the detached horn; then apply a pledget of tow, tar, and pressure.

CORNES.

These are bruises of a more serious nature. They are situated in the angle between the bars and the quarter; being generally on the inner side of the fore foot.

The owner is in fault when he suffers the shoe to remain upon the foot too long. It should be removed, and the foot pared out once every three weeks; otherwise the shoe will, in the farrier's language, "grow into the foot," *i. e.* the shoe preventing the natural growth of the horn, the crust will be prolonged, the shoe being carried forward, and the bearing being thrown upon the unprotected heels. If the shoe should become loose, gravel will frequently insinuate itself between it and the crust. The dirt will accumulate near to the bars and bruise the sole. The habitual use of shoes raised at the heels is a cause of

corn; from the disproportionate pressure and concussion thrown on the backward part of the foot. On the other hand, a foot naturally, or from neglect or disease, contracted, often has corns; because the thick and hard sole does not yield when the coffin-bone descends. But a low, flat, and fleshy foot is of all others most likely to exhibit corns; because the sensitive sole not being protected as in a concave foot, but being placed low, is consequently squeezed between the wings of the coffin-bone and the shoe.

Bruises are accompanied by extravasation of blood; so, in consequence of a bruise between the quarter and the bars, blood is thrown out, which insinuates itself into the young horn, and the existence of ordinary corn is indicated by the red appearance of the horn, when the angle of the bars is cleared out.

Corns are too much trifled with in Veterinary practice. A horse with a corn cannot be considered as sound; for in general the animal is liable to become lame without a moment's notice.

The cure is to be attempted by paring out the seat of corn almost to the quick. The extent of the mischief will thus be rendered evident; while the horse will be relieved by the pressure being taken from the part. If it is a simple bruise, without supuration, which will be known by the starting of the blood from a pin-hole or two, a little of the butyr of antimony should be lightly applied by means of a camel's-hair pencil; and then the shoe should be so contrived that all pressure should be taken from the part. The butyr of antimony will stimulate the almost denuded sole to throw out more healthy horn;

and the removal of the pressure of the shoe will be the most likely method to prevent a return of the complaint. If lameness, however, attends the corn, it will be most prudent to poultice the foot before the shoe is applied, as this will remove the inflammation. The daily use of the "suppling liniment for the feet" (Recipe No. 57, p. 260) will go far to restore the natural elasticity and uniform growth and bearing of the horn. A bar shoe, however, will most effectually relieve the pressure on the seat of the corn, and may be worn for a month or two; but it is not adapted for constant use, since, although it takes away weight, which the quarter will not now endure, it throws it upon the frog, which was never designed to receive permanent pressure, and which often becomes considerably injured by this means. After the bar shoe has been left off, the unilateral shoe will be resorted to with much advantage, either for temporary or permanent use.

Corn is in some cases a more complicated affair. The inflammation will run on to suppuration. Matter is thrown out between the horny and sensitive sole; and lays the foundation for quittor. Every separated portion of horn must be removed; the separation must be followed to its full extent, and the means adopted which were recommended for quittor.

The farrier and the owner should make themselves perfectly masters of the kind of foot which the horse with corns may possess; for different horses require essentially different treatment. A horse with high heels and hard hoof can scarcely have his foot too thoroughly pared out at each shoeing; while the

horse with low, weak heels has not a particle of horn to lose; the inner heel, the seat of corn, should more especially be respected.

CANKER.

Canker is not the separation of the horn from the sensitive part of the foot, but the growth of a fungoid instead of healthy horn.

In bad cases of long standing, in which all the feet are involved, it will rarely be prudent to attempt a cure. But in milder cases every portion of diseased horn must be removed; otherwise the confinement of the fungus will not only exceedingly torture the horse, but by the irritation which it produces, will prolong the disposition to throw out the unhealthy substance. This is a rule which admits of no exception; and the owner must never be terrified at the extent to which the foot is laid bare: not the slightest good can be effected while there is any portion of fungus confined.

Having laid the unhealthy part perfectly open, the practitioner will consider what kind of surface it presents. If there is much fungus, he will probably resort to the knife. The fungus must be destroyed, and it cannot be done too soon, or with too unsparing a hand. A level surface being thus produced, the butyr of antimony may be lightly applied over the whole of it.

There is no disease for the relief of which there are more numerous remedies, all strongly recommended, than for canker. All and each of these will some-

times be successful; but on other occasions every one will fail. Solutions of the various caustics; the different acids, either diluted or of the full strength; powders in which the sulphates or chlorides are mingled with chalk, bark, or charcoal; and compounds of all kinds of things have their advocates. Nitric acid and tar is in great favour with some parties. Others employ verdigris, mixed with tar and treacle, or honey, to which is often added a portion of sugar of lead. In fact, the recipes are too numerous to be repeated; but they all have one and the same intention, namely, to act as a caustic and astringent; reducing the fungus, and stimulating the part to take on a healthy secretion. No recipe can or should be given in a case of this kind. The strength of the agent should be suited to the state of the disease, and in this particular no two cases will be alike. Let, therefore, the judgment be exercised; and at the same time let it be remembered that it is better to change the application than to continue its use when it appears to produce no marked or beneficial effect. A rapid succession of different agents employed in different forms will often do that which a pertinacious adherence to a favourite nostrum will too frequently fail to accomplish; but, as in inexperienced hands the butyr of antimony is perhaps the safest caustic for general use, that compound will be alone recommended in the present treatise. When not judiciously employed, the more potent remedies for canker not only destroy the surface to which they are applied, but deeply and injuriously eat into the foot. The butyr of antimony acts where we want it; and mixing

with the moisture which exudes, it becomes weaker, and is speedily neutralized. *Except it is used in outrageous quantities, it cannot deeply corrode the foot.*

This being done, dry soft tow must be spread over the whole of the exposed surface, and made firmly and equally to press upon it; and the horse must be put into a thoroughly dry box, from which the urine will immediately run off, and where no kind of moisture can reach the diseased part. A cankered foot, however, must not be dressed too frequently. The two or three first dressings may be given on succeeding days; but, when the fungus has been in some degree subdued, the bandages should only be removed every fourth day, or even once a week. Every time that the foot is exposed it should be carefully examined, in order to see that there is no portion of unhealthy horn; for if there is, it must be immediately removed. The appearance of the exposed surface must also be inspected with great attention. Fresh fungus will require a fresh application of the butyr, or possibly of the knife. Every little pellicle of skinny matter or soft and porous horn must also be pared away. The healthy horn which has been secreted must be lightly run over with the knife, and then the butyr of antimony once more applied to the whole of the surface. The quantity used on the different portions of it should vary with the progress towards a cure. After this the foot must be bound up as before.

A few days having passed—if the sprouting of the fungus has been quite checked, but yet the horn does not grow so healthily as could be wished, the butyr may be omitted; a pledget of tow should then be dipped

in the stronger solution of the chloride of zinc, and spread over that portion of the foot, with more dry tow placed upon that. A sudden change will, by this application, often be effected; but, should not this take place to the desired extent, the use of the butyr must be for a while resumed.

The secret of the treatment of canker consists in the use of superficial caustics or stimulants; pressure as firmly and equably as it can be made; and the careful avoidance of greasy applications, or of moisture, either applied immediately to the foot, or suffered to penetrate to it through the dressing. The solution of chloride of zinc is an exception to this last rule; for it corrects the exudation from the foot; stimulates the sensitive parts to the secretion of healthy horn, while the small quantity that need be used will be far from supplying constant moisture.

If wet can certainly be avoided, a horse with a cankered foot will, immediately after the first apparent growth of good horn, do much better at work than standing idle in the stable.

As canker, however, is a constitutional disease, local applications must not be singly depended upon. It is often connected with grease; also with grossness of body. The condition of the horse must be considered, and those measures adopted which are calculated to improve the system.

THRUSH.

Thrush, oftener found in the hind feet than in the fore ones, is recognized by a ragged state of the frog, from the cleft of which there exudes an offensive

discharge. It is caused by the irritation of the little glands of the frog; which pour forth a stinking and an acrid secretion that corrodes the horn of the part. It is not always accompanied by lameness; but there is a treachery about it, against which due precaution should be taken. There is often more mischief done than is at first indicated, and it may run on to inveterate canker.

Thrushes in the hind feet are generally the worst in outward appearance; yet they are most easily cured. In most stables the urine and moisture gravitates to the back part of the stall; thus the hind feet stand in a mass of wet and dung. They become thrushy in consequence; but, with a greater attention to cleanliness and a little treatment, they are generally restored.

In the fore feet thrush is commonly only a symptom of internal and deep-seated disease. Then it acts as a drain, and affords relief; if stopped, lameness often immediately follows. In the fore feet, therefore, as a general rule, the foot should be treated and the thrush let alone. But in the hind feet the disease ought to be attacked, and the discharge dried up as quickly as may be consistent with safety.

The frog should be carefully examined, and every ragged and separated portion pared away; when, however, the ragged horn is removed, a white powdery substance will generally be exposed; this also should be extirpated until none but healthy horn can be seen; then a little of the following paste should be spread on a pledget of tow, and introduced as neatly and as deeply as may be into the cleft of the frog, the ends of the tow being carefully tucked in.

RECIPE (No. 59).

Thrush Paste.

TAKE—Alum ;
Blue vitriol ; and
White ditto, of each an ounce.

Rub them to fine powder. Melt together two pounds of tar and one of lard, and when they are getting cool stir in the powder.

If the disease has spread so as to render a portion of the frog bare, some of the paste should be laid on a piece of tow of a corresponding size, and placed over the sore, and the whole covered with dry tow. It occasionally may be necessary to touch the sore part with the butyr of antimony. After cases of bad thrush the horse should, provided the expense be not objected to, be shod with leather soles, in order to protect the frog from injury; and the foot should in this affection be kept from moisture with almost the same care as in canker.

NAVICULAR-JOINT DISEASE.

This is a very frequent cause of great and incurable lameness; but its nature and treatment was not, until remarked on by Mr. Turner, at all understood.

The manner of the insertion of the flexor tendon into the sole of the coffin-bone; and of the navicular bone lying above the tendon, in order to prevent that concussion which otherwise would take place, has been already explained.

The navicular bone was ordained to be in almost constant motion; to facilitate its movements a synovial sac was given, which is constantly secreting

joint oil. This fluid is of all importance; for, if it be deficient, the sides of the sac, not being properly distended, rub against and chafe one another. Inflammation follows; with it comes lameness. Pain is then great, and the horse rests his foot; thereby aggravating the disorder by not stimulating the synovial sac to secrete the joint oil; and by degrees ulceration of the lower side of the navicular bone is induced. This may go on for a long time; the horse being sometimes so lame that in mercy he is ultimately destroyed. In other instances, however, the animal lives; adhesion takes place between the tendon and the bone: the horse is no longer lame; but he steps short and is incurably groggy.

The cause of navicular disease is any thing which may lessen the secretion of the joint oil between the bone and the tendon. Too much rest; too much work; too violent exertion; or concussion to the foot; each and all may be the means of setting up this fearful disorder.

The horse with navicular disease is lame, and the lame foot is hot. The animal, to take the weight from it, stands pointing it in the stable; he holds the lame leg more forward than the sound one; for navicular disease is not known to exist in the hind feet. These symptoms are not, however, constant; but in the early stage of the disease they vary. The heat is sometimes lost; sometimes the foot is of its natural warmth; and sometimes it is deadly cold. Sometimes the horse is very lame; goes out lame; after a little work travels sound; and sometimes his pace is as firm as though he

were quite sound. He may continue thus changing about for months; or in a very little time he may become dead lame. His manner of going is peculiar. He travels upon his toe, and refuses to bring his heel to the ground. He goes up hill with tolerable ease; but down hill he is very apt to stumble. He takes very short and quick steps; and by the pattering noise which he makes indicates the nature of his affection.

With this disease the shape of the foot generally alters; although this is not always the case. A horse with a good open, or even a low foot, may have navicular disease; but commonly the heels narrow or wire in; the frog becomes dry and small; the quarters become high; the crust becomes thick; the sole grows concave and hard. The pasterns also get more upright; in fact, the general appearance of the foot is changed.

If taken in the very earliest stage, the disease may yield to treatment; but in the latter stage, though we may relieve, we cannot then hope to cure. A dose of physic, and a little fever or alterative medicine, according to the state of the horse, will form the constitutional measures. The foot, however, requires the most attention. The treatment recommended for contraction must be employed. The sole must be thinned; the quarters rasped; blood taken from the toe; the foot placed in poultices; very little and gentle exercise being cautiously given. We would enjoin constant rest; yet we fear to injure the health; but no more motion should be allowed than is absolutely

necessary. When the inflammation is slightly reduced, the coronets and legs of both fore members should be blistered; the feet being constantly kept moist and cool by means of swabs soaked in the liniment recommended for brittle hoof. After some relief has been obtained, the horse should be put to plough; care being taken that the draught is not too heavy. The regular and slow work he will thus get will do him much good. He ought to have become sound for three or four months at least before he is again taken to fast work. This is a long business, but only by such tedious means can a cure be obtained; and during all this while the foot must be constantly pared and stopped, the one-sided shoe or tip being worn.

Should all these means fail; or should the disease be established, neurotomy is the only resort. This operation will not cure the disease; but it will render the foot insensible and enable the horse to be of service to its owner. Even for neurotomy, however, the foot must be selected. Where the hoof is strong, the operation will nearly always be successful; but where it is low and weak; not sufficiently protected; the animal, from the loss of sensation in it, will bruise and injure the senseless foot. Inflammation will be excited; suppuration will follow, and the hoof will slough off. In old cases, when the tendon has shared the ulceration; or the bone has become so diseased as to be almost eaten through; then, after neurotomy, the tendon has ruptured; or the bone has fractured; the horse, in either case, being necessarily destroyed. Thus neurotomy for its success requires to be performed immediately after the recognition of the disease.

Neurotomy consists in the removal of a portion of the nerves of the leg; and, of course, it can only be performed by a regular practitioner. When, however, the foot has been properly selected, and the operation has not been too long delayed, the horse after it has been enabled to hunt for years; in certain instances the lameness has never returned. In some animals, however, sensation has been restored so rapidly, that the lameness reappeared before the treatment was concluded; but these last cases are rare; and in confirmed navicular disease, as neurotomy holds out the only hope of rendering the horse free from torture, it ought always to be tried.

CHAPTER XXXI.

ON SHOEING.

THE principle of shoeing is to afford a secure defence for the foot without interfering more than is necessary with its functions. In ancient times horses went unshod. The roads, where there were any, were probably as rough as they possibly could be; but a defence for the foot, though then much desired, was not invented beyond a leathern case for the hoof. Our horses have for many centuries been shod; and shoeing has become a necessary evil among us. We obtain by means of the shoe a defence for the horse's foot against the hard and flinty roads; over which a great portion of his work must be performed: but, the crust being fettered through the nails, we lose

some of the natural elasticity of the hoof; carelessness or ignorance in the manner of affixing the shoe often occasioning an unequal bearing on the different parts of the foot; necessarily producing great mischief.

The first object of shoeing is defence; that is accomplished by almost any kind of shoe, the web of which is sufficiently wide and thick. We prevent mischief to a certain extent, by contriving to have the bearing as nearly as possible where nature designed that it should be. The whole weight of the horse is supported by the crust when the foot first comes in contact with the ground; and the sole afterwards descends for the purpose of preserving the elasticity of the foot. Then nature and reason demand that the shoe should be constructed so that the bearing shall still be thrown on the crust; and that the sole shall have room and power to descend.

THE CONCAVE-SEATED SHOE.

The concave-seated shoe answers these purposes well. It has a flat circle on the foot-side, running round it; corresponding with the thickness of the crust; and, the lower part of the crust being pared evenly round, the whole weight of the horse is placed on a flat, level bearing. A shoe, however, the width of the crust would not afford sufficient defence to the sole; therefore the web is prolonged on the inner part of the circle, for about double the width of the seated part all round. But this must not press upon the sole; for the sole will not bear the slightest pres-

sure without injury. Then the foot-side of the web is bevelled or hollowed out, and presents a concave surface to the sole; so that, even when the sole descends immediately after the foot being brought into contact with the ground, there is no possibility of its touching any part of the shoe.

The concave-seated shoe presents to the ground an accurately flat surface; and to the foot a surface flat towards the outside, where it is to receive the crust, and hollow over the sole. Towards the quarters the shoe narrows, and the seating widens; so as to afford a level bearing, sufficiently broad to receive and protect the quarter.

The common country-shoe is a very different one. It also is flat towards the ground; but it presents to the foot either a flat surface, or a wholly concave one. It is much more easily made than the other; and that is a very considerable object with too many smiths. If the foot surface of the shoe is slanting, the crust must be cut in a slanting direction, in order to correspond with the shoe.

The seated shoe will suit almost every kind of foot; even that which is a little disposed to pumice: whereas, the common shoe, although it may be worn without inconvenience on the concave foot, must be dangerous to the flat one; and almost necessarily productive of evil where the sole is in the least degree convex.

After all, however, more depends on the preparation of the foot than on the kind of shoe. The sole should be well pared out all round; until it will yield a little to the pressure of the hardened thumb of the smith.

In a state of nature the sole would be prevented from morbidly thickening by the natural wear of the foot ; but we prevent this wear by the defence which we give to the sole. The horn, therefore, is continually accumulating ; we must consequently periodically remove it with the knife, or we shall lose altogether that portion of elasticity which shoeing has left to us. A great deal depends here on the skill of the smith ; and on the nature of the foot. From some feet very little can be taken away with safety. From other feet too much can scarcely be removed ; mischief will inevitably be produced if the horn is suffered to accumulate.

The sole being pared out, an even surface must be given to the crust ; but it must not, if it can be avoided, be brought upon a level with the sole ; lest that part should be unnecessarily exposed to bruise from the shoe.

The bars may be left or not, as it is most pleasing to the fancy of the smith ; but the seat of corn should be pared well out. Should the horse be liable to corn, the horn should be removed until the blood begins to start. No lameness will be produced by so apparently severe a cutting ; but the animal will go better and more safely if it be effected at each shoeing.

The frog should be relieved of all ragged horn, and left in a somewhat prominent state ;—it should, when practicable, be rather more projecting than the heels of the foot ; so that it may not touch the ground when the foot is first set down ; yet be so slightly removed

from the level with the lower surface of the shoe, that it shall certainly touch it when the ground is any way soft or uneven.

The heels will form the last, and one of the most important points of consideration; for, from unequal or undue pressure on them, much mischief often arises. The inner heel is always the weaker of the two; the principal wear will be on it; and near to it, in the majority of instances, corns will be found. The growth of the inner heel must be encouraged as much as possible; a little only must generally be pared from it; but particular care must be taken that it is not left perceptibly lower than the other.

Then comes the selection of the shoe to suit the different feet. It should, with few exceptions, be the concave-seated shoe; with a web equally thick from the toe to the heel; but the bearing of the shoe will strangely vary with the kind of foot. It is scarcely possible that a shoe, thinner at the heel than at the toe, can ever be serviceable; on the contrary, it will generally occasion lameness, by throwing undue stress on the flexor tendon. It will be a fruitful source of sprain of the back sinews; also of the navicular disease. On the other hand, a shoe a little elevated at the heel may favour a leg weak in the back sinews. In the hinder foot, and particularly in draught-horses, custom has sanctioned the use of a shoe raised at the heel by caulkins. This certainly gives the horse a better purchase; enables him to descend a hill more securely; as well as to draw a heavier load. But this custom of high caulkins is often carried to an

absurd and ruinous length. In many horses of heavy draught, the only bearing-points—the only parts of the shoe which touch the ground—are the tip of the toe, and the end of the caulkin. There must be inequality of pressure here; and by it the ossification of the cartilages; enlargement of the pasterns; and other diseases with which the draught-horse is often afflicted, are too well accounted for.

Of the varieties of shoes in common use, it is necessary to notice only the following:—

THE BAR SHOE.

This is often indispensable. It is almost the only means by which the pressure can be thrown from the seat of sand-crack; but then it is thrown on a part—the frog—which nature never designed to receive primary pressure; therefore, the bar shoe should be left off as soon as the case will permit. On the other hand, it is sometimes used to protect a tender frog from injury; the hinder part of the shoe being thickened, and hollowed over the frog; but, unless it is made exceedingly heavy, it will soon be flattened; and afterwards it will most injuriously press upon the heels.

For pumiced feet, a bar shoe is usually necessary; but this sort of shoe is only a make-shift; and the horse that wears it can never be said to be safe, especially in frosty weather. The bar shoe may be necessary at times; but it is nevertheless an evil, and should, if possible, be got rid of.

THE ONE-SIDED NAILED, OR UNILATERAL SHOE.

This shoe generally has, upon the outer side, one more than its complement of nails; generally a nail at the centre of the toe, and one or two tolerably close to it, but no more upon the inner side. It was applied by the old farriers, and often with good effect, in the prevention of cutting; but it is now discovered to have more important uses. The inner quarter, where contraction usually first commences, and where it exists in the greatest degree, is in a manner free; it can expand when the foot comes on the ground; and it can contract again when it is lifted in the air. This shoe affords all the defence to the foot for which we have recourse to shoeing; while it leaves much of that natural action to the hoof, the loss of which is the greatest evil inflicted by shoeing.

When adopted early, it preserves to a very material degree the natural shape of the foot; and, when resorted to, after contraction has commenced, it restores, in some measure, the former width of heel. It removes that concussion which the animal feels when the shoe is firmly nailed to both quarters.

It has an appearance of insecurity about it; but that insecurity is only in appearance. The shoe will remain, and last its usual time on the foot of a hackney; many stage-coach horses used to run with it, and did not cast their shoes oftener than they formerly did. It would not, however, suit heavy draught-horses; and it might possibly be wrenched from the foot of the hunter when he went over a stiff country.

But then what form of shoe is not occasionally lost during a burst over such land?

TIPS.

These are half-shoes, extending only around the toe, put on in order to preserve the crust from being battered and torn when the horse is ridden or turned out. The quarters are left perfectly unfettered; and it is on account of the hoofs being comparatively free that the feet of a horse with contraction often seem to derive so much good from a run at grass. The advantage of the tips may be carried still farther: every horse that is soiled during the summer should wear tips. If a horse be turned into a loose box, only for a week or two, he should have tips. Harm can hardly be produced by them; but, on the other hand, much benefit generally ensues from this comparatively unfettered state of the foot. Moreover, the late Mr. Percival when near his death acquainted the author that he had for years ridden a nag over London streets and country roads with no greater protection to the feet than tips could afford. Such testimony from a gentleman whose life was shortened by the scientific research to which it was devoted, should receive the consideration of every man who complains of the injuries done to the horse's feet by the present mode of shoeing.

THE
DISEASES OF DOGS.

IN treating of the diseases of these animals, the companions and friends of man, the same order will be adopted that has been pursued in the pathology of the horse.

Of inflammation generally it is unnecessary again to speak; and although there are many diseases which are connected with an inflammatory state of the brain, a case of pure phrenitis has rarely, if ever, been seen in the dog. Nor is there any thing that bears strict resemblance to either vertigo or to megrims in the horse. That which comes nearest to it shall be the subject of the first chapter.

CHAPTER I.

COMPRESSION OF THE BRAIN.

THIS singular disease is thus characterized:—the dog is continually running round and round; where he has liberty to do so, he will continue this action almost from morning until night. He performs these incessant circles in precisely the same direction, and generally with his head a little inclined to the inside

of the circle. At first he is conscious of surrounding objects; he stops for a moment when spoken to; but immediately afterwards resumes his perambulations, carefully steering clear of every impediment in his way. After the first or second day he usually becomes both blind and deaf; yet he marches round; at length blundering against every thing; and thus he continues until he is fairly worn out, when he dies in slight convulsion.

On examination after death, there will generally be found pressure on some part of the brain, and on the side towards which the animal inclined his head. The nature of that pressure is variable. Spiculæ of bone have been seen pressing upon, and entering into the substance of the brain; sometimes effusion of blood on the brain has been found; and, oftener, an accumulation of serous fluid in the ventricles.

This is a disease which has been uniformly fatal, and the dog labouring under it should be at once destroyed. For the best efforts of the Veterinarian can hope only to prolong a miserable existence. The most profound science can never expect to re-establish the lost health. Effusion upon the brain too often sets the human physician at defiance, and what medicine has hitherto been discovered which will remove a spicula of bone from the interior of the cranium? When medicine cannot always cure a dropsy, which is a superficial effusion of serum, and time generally removes the discolorization of a bruise, which is blood thrown out under the skin, what can science hope to accomplish when either fluid is enclosed within the bony cranium?

CHAPTER II.

RABIES—MADNESS.

RABIES is said to be produced by improper food; by want of water; by hot weather; and by various other causes. If it be generated in the animal at all, it is certainly most likely to be bred in the canine system by that cold-blooded cruelty, which, disregarding all the attractive qualities of the animal, chains it to a kennel, and leaves it to howl away its existence, under the pretence of such a misery being a safeguard to the premises. It is, however, generally imagined to have *but one origin, and that one is inoculation*. It certainly is conveyed from one animal to another by the bite; or by the poison which resides in the saliva which is received on some abraded surface.

The dog that is becoming rabid is dull; disinclined for food; more than usually ill-tempered; fidgety, and discontented. If he is closely watched, there is usually some part which he is eagerly licking; or biting; or scratching. It may be the place where he was bitten, which now seems to be itching intolerably, or to give him very great pain.

Soon afterwards a very considerable change takes place in his whole appearance and manner, which assumes one of two forms. The eye may become intensely bright, and glaring; the dog is continually on the watch; and is tracing the fancied path of some imaginary object. He darts at every fly; and also at many a thing that has no existence but in his own disturbed imagination; he makes the most violent efforts

to escape; he gnaws his kennel almost to pieces. If a dog or a strange person comes within his reach, he flies at them with the greatest fury; sometimes he does not respect even his master!

He is in incessant action: he scrapes his bed under his chest: he disposes of it in a thousand ways, and yet is unable to make himself comfortable; and every now and then he lifts his head, and utters a howl altogether characteristic of the mad dog.

If he is enabled to effect his escape, he wanders hither and thither; as though he found relief in motion; he surmounts every obstacle in order to get away; he travels many and many a mile; yet he seldom goes out of his way to injure any thing, but he flies at the creature that may cross his path; he gives the bite, and hastens onward. If he is not stopped in his career, he at length becomes wearied; he finds his way home, and curls himself up in his kennel. He appears to sleep away twelve or twenty-four hours; after which, if he has the opportunity, he sallies out again, and snaps at all who by coming near to him excite his irritability.

His appetite is variable; sometimes he will eat his usual food, and at other times he will totally neglect it. But, almost always, he is possessed by a singularly depraved appetite: he eats his own excrement; laps his own urine; and fills his stomach with every abominable thing. His thirst is always increased, and when he can get at water he may in his eagerness bury his head in the fluid, but the swollen state of the fauces forbids a drop to pass into the parched and inflamed stomach.

This stage of ferocity and danger lasts about two days; and then the brightness of the eye dies away—a film steals over it—the dog becomes weak—he staggers about—and dies four or five days after the commencement of the attack.

At other times rabies assumes a very different character. The dog does not exhibit the slightest symptom of ferocity, or even of ill-temper, unless he is very much provoked; but there is the peculiar glare of the eye, expressive of anxiety and supplication; there is the same making of the bed, but not with so much violence; the same watching of imaginary objects, but no attempt to seize them. The dog recognizes his owner; obeys him, and fondles upon him.

The lower jaw, after the first day, begins to lose its power of motion; the dog may be able to close his mouth by a violent effort, but he cannot seize and masticate his food. The jaw hangs down, and the tongue protrudes. There is the same thirst, but he is unable to swallow; and he hangs over the water for a quarter of an hour at a time; plunges his muzzle into it up to his eyes, covering it with the spume which flows from his lips; yet is unable to get a drop into the back part of the mouth. There is rarely any howl, but a harsh inward sound in the throat.

The disease continues about the same time; the dog becomes weak; he staggers; he loses the use of his hinder limbs; and dies without a struggle.

Many humane people have, however, doubted whether the latter form of disease be rightfully termed hydrophobia. Assuredly, it is hard to conceive that

two such opposite states result from the same pathological cause. Although the author hesitates to insist on his own opinion, where a doubt may entail months of agony, and years of anxiety on his reader, he has never known hydrophobia to be generated by an animal in such a condition; and the examination, after death preceded by such symptoms, always disclosed the dog to have suffered not from rabies, but from acute laryngitis.

The appearances after death are different in the two varieties of the malady. In the first there is generally great inflammation about the back part of the mouth, and the upper part of the windpipe; inflammation and also corrugation of the stomach, and the stomach contains more or less of the strange substances of which mention has been made. In the latter there is more inflammation in the throat; but less in the stomach, and the stomach usually contains only a dark fluid.

Of the medical treatment of rabies in the dog, little that is satisfactory can be said. No man is justified in keeping alive the animal concerning the power of which to inflict a horrible death upon an unlimited number of human beings no doubt can possibly be entertained. *There is no cure for rabies.* The animal, therefore, concerning which a doubt even exists should be destroyed. The possibility of a terrible disease is thereby spared to some human being, and as the dog has no foreknowledge to quicken its anticipations, death to it is reduced to a mere physical agony.

As to preventives, no dependence can be placed upon them; it will therefore be the duty of the

practitioner to urge the destruction of every dog that has been bitten, or on which any suspicion can rest. Human life is far too valuable to be endangered. There will always be a degree of apprehension and of fear attending the keeping of such a dog; while the consciousness of not having done that which is perfectly right, will materially lessen the pleasure that should otherwise be felt in having the faithful animal about us.

Should a human being be bitten by a rabid dog, there fortunately is a remedy which if not an absolute specific very rarely fails. Let the part be washed; then freely laid open, and every portion of the wound exposed. The surface is next to be well and long rubbed with the nitrate of silver. This salt will form a solid eschar, within which the editor thinks the virus will be imprisoned, and the poison thus be prevented tainting the system.

CHAPTER III.

CANKER OF THE EAR.

THIS is an affection attacking the ear of the dog. The first symptom is shaking of the head; if that indication be unattended to, it is followed by the animal's carrying the head a little on one side, and scratching with violence about the ear. On examining the dog, the projections about the base of the inside of the ear will be found to be a little redder than usual. The interior of the organ will, however,

have become considerably darker than natural, and the opening may appear clogged with dark pigment, which may be actually black.

Water and fomentations of all kinds must be avoided. It is very possible to wash off the ear of the dog with soap and warm water, which invariably aggravates the disease; and the editor of the present volume has not encountered a single case where benefit has resulted from such applications.

The canker in the ear of the dog is strictly a local annoyance. It is caused by over-feeding. Long-eared dogs, as spaniels, are very liable to it; and in proportion to the length of the flap, is the intensity of the foetor, which is one of the symptoms of the disease. To save the animal she is fond of those sufferings that attend a most irritating disorder, the lady should exercise discretion when proportioning the food of her favourite. It is entirely caused by over-feeding, or by grossness of body. If canker be wrongly treated, it is not altogether free from danger. The canal of the ear becomes full of a black pigment, which no washing can remove. The head is at length continuously lowered upon the side of the disease, and after some time the animal lies down to nurse its ear upon the paws. While doing this, a low whine is uttered; and if the evident signs of misery are longer neglected, the canker at last finds its way to the brain, and the dog perishes raving mad, but not hydrophobic, or rather in a rabid condition.

All this may be hindered, however, by a cleanly and a simple remedy, that converts the unhealthy back secretion into a sort of white curd, which, although

it may appear to inconvenience the animal and to clog the canal, nevertheless must *not* be washed away under any notion of cleanliness.

RECIPE (No. 1).

Wash for Canker in the Ear.

TAKE—Liquor plumbi,
To be used thrice daily ;

Fill the cavity of the ear with the preparation, and throw the dog from you.

No creature can be more submissive than the dog, when its fears are not excited. Be gentle, and the animal will allow you to do as you please. But exert violence, and it will require another person to restrain the sufferer, and even then the object desired is seldom fully accomplished. If it is cold weather, warm the medicine by placing it upright in a basin of hot water. In summer no such care will be needed.

Call the dog to you. Having the bottle in one hand, throw back the flap of the ear with the other, at the same time steadying the head. Then using the phial, fill the ear with the preparation, and immediately cover it with the flap. Either then proceed to apply the liquid to the other ear, or should that be unnecessary, fling the animal from you and retreat yourself to the furthest point possible.

The reason for the last advice is because the dog, feeling some substance to be within the ear, immediately and violently shakes the head to remove it. The liquor plumbi is by this action scattered about, and wherever it falls there will remain a white spot. The medicine is lead dissolved ; but by the action of

the air the lead is converted into carbonate of lead, or into white paint, after a short exposure. Carbonate of lead is not soluble in water. Therefore, always employ a stoppered bottle, and never permit the bottle to remain open longer than is absolutely necessary, for fear of the carbonate being precipitated.

No disease yields more readily than canker in the dog; but if left to run its course, it gives rise to other annoyances. The flap of the ear from the perpetual shaking of the head becomes unhealthy. A scurfiness is first exhibited about the margin, and the inner side of the flap. Should this be unattended to, sores next make their appearance; or if the shaking of the head be very energetic, a watery abscess forms upon the inner side of the flap of the ear. These affections are always mitigated by attention being bestowed upon the internal disorder. However, that will not in every case succeed, therefore apply to the scurfy or to the sore part a lotion composed of pure glycerine, one ounce; camphor, one drachm; chloride of zinc, one grain. Dissolve the camphor in the glycerine, and add the chloride of zinc.

When abscess is developed, at once slit it up its entire length, and dress the wound with the solution of chloride of zinc, one grain to the ounce. The injuries to the flap require to be dressed only at such periods as the internal ear is attended to.

By such an easy, safe, and considerate process are all the barbarities which were recently practised upon the ears of unfortunate dogs superseded. The danger which was once supposed connected with canker in the ear, was created by the mistaken measures adopted

for the cure of the disease, which when taken in the early stage of the disorder is characterized by its tractability, only one caution is necessary. Always purchase the liquor^o plumbi as it is required. The liquid which has been long in the house, and which has covered the bottle with a white crust, is worthless. The whole deposit is the lead which was once in solution, and the fluid consists of little more than unwholesome water.

CHAPTER IV.

THE DISEASES OF THE EYES.

THE first of these belongs to the eyelid, although generally accompanied by some inflammation of the eye itself.

ULCERATION OF THE EYELID.

When the dog has a mangy affection about him, it attacks various parts. One of the most painful and obstinate of the attacks displays scurfiness, loss of hair, swelling and ulceration of the eyelid. It is inflammation^o of the numerous little glands which secrete a fluid destined to keep the lids moist and supple during the waking hours; and to allow of their being brought into closer approximation during sleep.

This disease will not yield to any mange remedy; but there is an ointment that will sometimes be effectual.

RECIPE (No. 2).

Ointment for Ulcerated Eyelids.

TAKE—Quicksilver, one drachm ;

Strong nitric acid, a drachm and a half :

Dissolve the mercury in the acid, and while the solution is warm, add six ounces of melted lard. Stir them well together until they are thoroughly cold.

Some of this ointment should be rubbed on the lids morning, noon, and night ; care being taken that as little as possible gets into the eyes.

Should the above fail, the reader should try the application recommended for scurviness round the flap, which is often spoken of as “Canker of the Ear.”

ENLARGEMENT OF THE THIRD EYELID.

The quadruped not having hands to ward off the dangers which threaten him, and to which the eyes are particularly exposed, nature has given him a moveable membrane, situated within the inner corner of the eye ; this he can protrude at pleasure, either as a defence to the eye, or to wipe off any temporary nuisance. It is sometimes called, on account of its function, the third eyelid.

The dog is more adroit in the use of his paws than many other animals are ; therefore this membrane is very little developed compared with the haw or membrana nictitans of the horse or ox. It is, however, far more subject to disease than the same membrane in either of those animals. A little dust or gravel

sometimes insinuates itself within the folds of the membrane; it produces much inflammation and enlargement; or inflammation and enlargement arise from some unknown cause. The membrane projects at the inner corner of the eye so much as to prevent the lids from closing; and becomes a source of very great annoyance to the poor animal. This sometimes occurs in common inflammation of the eye, and more particularly in the inflammation of distemper.

Should this annoyance attend inflammation of the eye, apply to the organ, with a large camel's-hair brush, so often as may be convenient, a sufficiency of the following wash.

RECIPE (No. 3).

Wash for Inflamed Eye.

TAKE—Chloride of zinc, one grain;
Rose water, one ounce.

If distemper cause such an affection, let it alone. Attend to the major disease, and with it all minor troubles generally disappear.

WEeping FROM THE EYE.

This is the usual accompaniment of inflammation, and will abate when the inflammation subsides; or, should it continue, employ some of the wash just recommended.

In some breeds, however, this weeping seems to be a natural defect of the eye. It is so in the Blenheim spaniel. In such a case, do nothing. It is a natural discharge, and by stopping it you may provoke the

outbreak of some fearful disorder. If men will breed highly, they must accept small unpleasantnesses as a consequence of the system.

FISTULA LACRYMALIS.

There is a canal below the inner corner of the eye through which the superfluous tears flow into the cavity of the nose. When the tears are secreted too rapidly to be thus carried away, they run down the cheek; and they do so when this canal is obstructed. Such obstruction may be caused by any potent inflammation of its lining membrane; or by the introduction of a portion of hardened mucus into it. When an obstruction occurs, the canal above the impediment evidently must be distended with fluid. There then is a soft tumour below the inner angle of the eye. This, for a considerable time, alternately appears and disappears. The fluid may often be pressed down towards the nose, or upwards towards the eye. At length, from frequent distention, the membrane of the canal becomes diseased; it is ruptured, and an ulcer is seen below the eye, which is spoken of as *fistula lacrymalis*.

The ulcer, being once formed, will never be healed; it is the passage for the tears which nature has contrived, the true canal having become obstructed. The old canal can never be reopened; we have no instrument sufficiently delicate for the purpose, or, if we had, we could not insert it and give the dog patience enough to wear such an instrument.

The practitioner, therefore, should confess at once

the hopelessness of the case: and limit his directions to simple cleanliness, which is best accomplished by the frequent use of the weaker solution of chloride of zinc, one grain to the ounce of water.

INFLAMMATION OF THE EYE.

The dog is frequently subject to pure inflammation of the eyes. He seeks the darkest places—he is continually closing his eyes when brought into the light. The conjunctival membrane, whether covering the eye or lining the interior of the eyelid, is intensely red. When the eye is looked into from above, there is discovered a red shade, showing how rapidly the interior of this organ is affected in the dog.

The animal should be placed in a dark room. The eyes should frequently be bathed with warm water, while the habit of the animal is observed. Should costiveness exist, give half an ounce, one ounce, or one ounce and a half of castor oil. If purgation be exhibited, correct it according to the prescription given further on; while if neither prevail, or if either have been removed, administer thrice daily one, two, or four drops of liquor arsenicalis in a little sugar and water.

The inflammation being a little subdued, cold applications will be most useful, and the wash for inflamed eyes (Recipe No. 2) should be subsequently employed.

Inflammation of the eyes is more or less connected with some other diseases; and when such is the case, the reader will be guided by the rule which enjoins a

local affection should be unheeded while a major disease exists within the body.

CATARACT.

This is one of the terminations of inflammation of the eye. It is opacity sometimes of the membrane covering the crystalline lens; but much oftener of the lens itself. The dog is peculiarly subject to cataract. The majority of old dogs become blind from this cause. Nothing can be done, even from the commencement of the obscurity of the lens; for the part is too deeply seated for our applications to reach it.

GUTTA SERENA.

This is another (somewhat unfrequent) cause of blindness in the dog. The eye itself is perfectly clear, but the retina—the expansion of the optic nerve within the eye—is paralyzed, and consequently insensible to the impression of light. There are indeed very few instances of recorded successful treatment of this species of blindness, and few of those recorded cases will stand the test of rigid investigation.

Much, however, depends on the cause of the disorder. If it is the consequence of violence, it never can be cured. If it has come on very slowly, little good can be expected; but when it appears suddenly, unaccompanied by disease, there is some slight hope. In the last instance, however, gutta serena is best treated by being left alone. Correct the health, and there always is a probability that the attendant upon a bad state of body will disappear.

PROTRUSION OF THE EYE.

This occasionally happens. The eye is forced out of the socket;—the lid contracts, and may prevent its return. If the accident has not long occurred, a little patience will accomplish the return of the eye, with a fair chance of preserving the sight.

The part must be gently but well cleansed. The eye should then be oiled, and while an assistant holds back the lids, the operator, having his hand covered with a silk handkerchief, should endeavour to return the globe. Should this be found impossible, without loss of time the upper lid should be sundered, when the opening being enlarged, the replacement is easily accomplished. The sundered lid should be left alone till all bleeding has ceased, when the sides should be brought together by a single suture, and the wound repeatedly bathed with the solution of the chloride of zinc, one grain to the ounce of water. It is astonishing how readily wounds on the eyelids heal, and the reader may be surprised to perceive how few traces such an operation will leave behind it.

CHAPTER V.

THE TONGUE.

THE dog is subject to bladders under the tongue. These seem to occasion excessive pain, as the animal during their existence will not eat, and touching the

mouth excites an evident determination to resist, while saliva is constantly running over the sides of the lower jaw.

Have patience with the sick animal. Speak kindly, for then the mouth will be opened, and even the exhibition of his sores will soothe the sufferings of the dog. This end being obtained, take a sharp pair of scissors and slit up the bladders. This will cause no resistance, as it produces no pain. Afterwards use as a gargle the following, which will not only cleanse the sore, but will destroy all unpleasant smell.

RECIPE (No. 4).

Cleansing and Healing Wash for the dog's mouth.

TAKE—Chloride of zinc, two grains ;

Sugar, one ounce ;

Water, four ounces :

Mix, and when dissolved, shake the bottle. To be used frequently, some being poured into the mouth, and then the head released, allowing the fluid to run out again.

WORMING.

This is sad nonsense, and the belief in its efficacy, or in its possibility, is a disgrace to the present age. All people, even the highest in point of birth and education, however, seem to have a strange faith in its wondrous preservative powers.

To suppose that a worm exists under the tongue of a dog is not such utter folly, as numerous worms are now known to inhabit the animal skin—human and otherwise. Still the credulity must be vast which can imagine a worm of a size comparable to that piece of

tendon which is commonly sent back, wrapped carefully up in a piece of paper to the patroness of this superstition, can exist in such a place.

The supposed worm is a portion of the tendons necessary to the healthy exercise of the tongue. To imagine that by torturing an animal man can prevent the creature's biting, immediately after the miscalled operation, or hinder the animal through life from snapping, should it afterwards go mad, requires an amount of credulity greater than the Editor can reasonably imagine.

Those who desire the pup's inclination to gnaw various articles should be corrected, may effect the object by clipping off the tusks close to the gum. The animal will thus be disabled from hanging to and wrenching away any substance into which the dental needles of the primary set of teeth may become fixed. No operation can possibly prevent the mad dog from snapping when the animal is irritated.

CHAPTER VI.

THE TEETH.

THE full-grown dog has twenty teeth in the upper jaw, and twenty-two in the lower one. The central front teeth and the tusks pierce the gums shortly after birth;—the others protrude very rapidly. The first teeth remain a short period compared with the horse or

with cattle, for the teething of a spaniel is over by the time the animal is seven or eight months old.

The teeth preserve their freshness and whiteness until the dog is twenty months or two years old; when they begin to be tarnished, and the *fleur-de-lys* shape of some of the front teeth is changed to a more rounded one. This is hastened or retarded by the general health of the dog, and by the kind of food on which he lives; so that there is nothing about the animal that will indicate the age with any degree of certainty. The dog of five years old, who has plenty of exercise, and is fed on soft food, will have a mouth full two years younger than another who has been in constant confinement, or who has been grossly fed upon flesh. Some breeds of dogs, however, lose the teeth particularly early, and the difficulty of judging of the precise age of course increases every year. In the general course of things, supposing the animal to be of a strong and healthy breed, the middle front teeth of the lower jaw begin to be rounded at sixteen months, or between that period and two-and-twenty months; the central lobe of the *fleur-de-lys* is gone, and the whole of the edge is level at between three and four years old.

The same process commences in the next incisors between two years and a half or three years, and terminates between four and five; and in the corner front teeth it commences at four years, and is completed at five. The wearing away of the upper front teeth has not been so carefully noted, and therefore of these teeth nothing can with confidence be asserted.

The tusks do not generally appear to be rounded until the front teeth are more or less changed; and they longer retain their freshness of appearance. The indications of age in them are vague and variable; they depend still more on the habits and food of the dog than do those of the other teeth.

The Editor, however, has seen numerous dogs, both large and small, which have lost their front teeth before the second year has been attained; therefore no dependence can be placed upon the teeth of the dog as indicative of the age of the animal, although, by exceptional kinds and races, the foregoing remarks of Mr. Youatt may be fully justified.

The diseases of the teeth of petted dogs are often difficult, and disgusting to treat. Before the inmate of the drawing-room becomes two years old, tartar begins to accumulate round the roots of many of the teeth. While it grows downward on the teeth, it also presses against the gums; it inflames, it corrodes, and the breath becomes offensive.

If the case is now neglected, the tartar will be collected more thickly about the teeth; it will eat into the gums; it will form extensive and fœtid ulcers on the inside of the lips; many of the teeth will drop out, and the breath of the animal is rendered absolutely loathsome.

As a local application, healing the gums and sweetening the breath, equal parts of rose water and the weaker solution of the chloride of zinc, applied by means of one of those brushes ladies use for what is called Poonah painting, will answer every wish. A

weak solution of the chloride of zinc will also be found very useful for removing the present foetor, especially if a little sugar be added; but it must not be continued longer than is necessary; for it can destroy the enamel. None of these applications, however, will do more than temporary good. To perfectly destroy the nuisance, the teeth must, from time to time, be scraped with instruments similar to those employed by the dentist, but of a size suited to that of the dog. When this is effectually done, the mouth will speedily heal, upon the free employment of the wash previously recommended, and the breath of the animal no longer be offensive.

CHAPTER VII.

INFLAMMATION OF THE MEMBRANE OF THE NOSE.

THERE are two distinct affections of the membrane of the nose. The first is a peculiar violent spasmodic snorting noise, made with the head generally extended; the nose protruded and pointing a little upwards. It will occasionally last for two minutes, or more, until the dog seems to be giddy; sometimes it terminates in a fit of sneezing; it is never connected with any degree of cough. It appears to arise from an itching sensation within the nostril, which springs from disordered digestion. Attention to the food of the animal is now of every consequence. The treatment may begin with an emetic.

RECIPE (No. 5.)

Canine Emetic.

Dissolve one grain of tartar emetic in one ounce of simple syrup.

Give one, two, or three teaspoonfuls for a dose, according to the size of the animal, and repeat the medicine in twenty minutes, should it not operate.

Half an ounce, one ounce, or one ounce and a half of castor oil may succeed, followed by a daily quinine pill, such as is recommended for distemper.

The second complaint is a discharge from the nose similar to that which accompanies distemper. Old dogs are very subject to it, and particularly old pugs. It is occasionally a discharge of almost all colours, and is highly offensive. It is ulceration of some of the small bones of the nose, springing from the debility inseparable from old age, increased by high feeding and over-indulgence. The parts affected are removed from sight, and all that the kindest proprietor can accomplish, is effected by a frequent injection of the weak solution of the chloride of zinc, with a correction of the folly which may previously have been gratified at the expense of the animal.

CHAPTER VIII.

INFLAMMATION OF THE GLANDS, AND OF THE CELLULAR SUBSTANCE BENEATH THE THROAT.

PHLEGMONOUS SWELLING OF THE THROAT.

Dogs are very subject to swellings of the neck, of various kinds, which are frequent attendants upon the

latter stages of severe distemper. Sometimes on the lower jaw, or on the side of the throat immediately beneath it, a tumour suddenly appears; at first quite circumscribed, but gradually becoming more diffused, and preventing the perfect opening of the mouth. It is hot and tender; the dog is evidently suffering acute pain.

After a time, which is always of uncertain duration, it will point or feel soft at some part; there it should be opened with a lancet. The quantity of fluid which some of these abscesses contain is astonishing. More than a quart has been taken from a large dog.

The contents having been evacuated, a director should be inserted into the opening, and the skin, to whatever extent it may be detached, be ruthlessly slit up. A horrible gaping wound is thus created, but the sore being occasionally gently moistened with the weaker solution of the chloride of zinc, one grain to the ounce of water, it is astonishing how quickly the injury will heal, without leaving even a trace behind. The animal will nearly always respect its own sufferings, but should a desire be displayed to scratch the part, of course the hind limb must be encased in a wrapper.

ENLARGEMENT OF THE THYROID GLANDS— BRONCHOCELE.

The throat of the dog exhibits yet another kind of tumour. On either side of the windpipe, sometimes high up in the neck, at others almost as low as the chest, will be felt an oval, moveable, hard tumour; varying in size from a bean to a pullet's egg. The

pug, the Italian greyhound, and the Blenheim spaniel, are particularly subject to these tumours. In the pug they are often large. Highly bred bull terrier pups are likewise subject to be thus affected. The jugulars pass over the swellings, and become strangely turgid, from the impediment to the circulation which such tumours must cause. The dog sometimes breathes with difficulty, or has in a few instances been literally suffocated by these enlargements.

This is bronchocele, or enlargement of the thyroid gland. Where it occasions no inconvenience, but exists in a chronic form, the enlargement should not be interfered with. However, where it is of an acute nature, no time should be lost in taking the necessary measures for its relief. The following pills should be immediately compounded, and be thrice administered during every day.

RECIPE (No. 6).

Pills for Bronchocele.

TAKE—Iodine, one, two, or four grains;

Quassia powder, and extract of gentian, a sufficiency:

Make into sixteen pills: choosing the amount of iodine according to the size of the animal: and give three daily.

At the same time the hair should be cut as short as possible over the tumour, which should be rubbed for a quarter of an hour thrice daily with some of the following ointment.

RECIPE (No. 7).

Absorbing Ointment.

TAKE—Iodide of lead, one drachm;

Simple ointment, one ounce:

To be applied as has been directed.

While this treatment, which if adopted sufficiently early is invariably successful, is being pursued, all requisite attention should be paid to the necessities of the system; for any neglect in that respect will materially retard the recovery, if not endanger the life.

SCHIRROUS TUMOURS OF THE TEATS.

There are other tumours which cannot, perhaps, be any where more conveniently considered than here; viz., *enlargement of the teats*; or hard *schirrous tumours* amongst these glands.

When the milk of a suckling bitch is dried away too rapidly; or when the teats fill with milk at the time she would have pupped had she been allowed the dog; and more especially when an animal is denied her natural longing for maternity, there may sometimes remain permanent enlargements around the base of the teats; or numerous small, hard, kernel-like substances will be found in the midst of the glands.

The moment one of these little hard bodies can be detected, remedial measures should be energetically adopted. An operation or removal of the enlargements with the knife has been recommended. But the editor is not so fond of cutting living flesh when the result is doubtful; and no wound can correct the disposition of the system to throw out such swellings. Therefore the pursuit of the same measures as were advised for the cure of bronchocele, is here proposed: and if this treatment in the course of a month does not change the nature of the tumours, they had better be let alone.

Numerous animals have survived to a good old age, having the mammary glands disfigured with such enlargements. However, where it is determined to forego all treatment for an evident disease, the condition of the animal should be specially regarded. The food should be sufficient; rather spare than otherwise. No meat or milk should be allowed to pet dogs. They are fond of such feeding, but they perform no work, and a stimulating diet therefore does injury. Castor oil or other physics should be used, as they may be needed.

Where, however, the tumour enlarges so as to trail upon the ground, and the animal is a pointer, hound, or other creature having definite uses, the extirpation of the growth is absolutely imperative. Should it be loose it may be surrounded with a ligature, and thus got rid of. If it is fixed, the knife with all care is the only resort. In either case the iodine pills should be exhibited, and the wound should be subsequently moistened with the solution of the chloride of zinc.

ADIPOSE TUMOURS ABOUT THE TEATS.

It is not every tumour of the teats that becomes schirrous. Some of them that have been separated from the neighbouring substance seem to be composed of mere masses of fat. They seldom grow to any very large size, and they never ulcerate. They are not often attached to the teats; they are more between them, and they may be known by their uniform smoothness and softness. Such growths should never be interfered with, for being lowly organized the wound left by an operation may be difficult to heal.

ENCYSTED TUMOURS.

Other enlargements, oftenest encountered upon the mammary glands, are *encysted* tumours. They are composed of a cyst including a fluid of uncertain character. An enormous tumour may sometimes be composed of a *single cyst*, which may ulcerate, but the fluid contents having escaped, the ulcer does not become of a malignant nature. They are always distinguishable from the schirrous tumour by the greater evenness of their surface, and by their not possessing the peculiar unyielding character of the former, or more malignant growth.

Such tumour should be freely opened, leaving a large, and certainly an ugly wound. This, however, should be treated with the chloride of zinc wash, when it generally closes, leaving no trace behind.

The *compound encysted tumour* is more common than the simple one. One cyst being formed, another unites itself to it, or seems to grow upon it; another and another follow, until there is an accumulation of cysts, and the growth becomes of an enormous bulk. This species of tumour, when in consequence of its weight it hangs down, or rubs against the ground, occasionally ulcerates; and the ulceration from the repetition of the cause is constantly being soiled and cannot heal.

The ulceration does not open all the sacs, and therefore, although it causes agony to the animal, it in no appreciable way decreases the magnitude of the enlargement, which is only to be eradicated by the fearless but skilful employment of the knife.

WARTS.

Dogs are subject to *warts*. They appear scattered over various parts of the body; either of a simple form, or with spreading, fungoid heads. If a strong solution of the nitrate of silver is applied to them with a camel's-hair brush, they will often dwindle away without pain.

Sometimes they appear on the lips; and frequently the whole of the interior surface of the mouth becomes covered with warts. This is a sad business for the dog; he can eat no solid food; and can scarcely lap enough fluid to keep himself alive.

Now and then warts accumulate upon the eyelids; and if they should incline to the inner edge, they then occasion much misery to the animal. Severe inflammation of the eye has been produced by the constant irritation of a wart; and the disease has occasionally gone on to absolute blindness.

The method of removal will depend on the situation and the size of the growth. If it should be small, and lie towards the inside of the lid, it may be cut off with a sharp pair of probe-pointed scissors; and the root lightly touched with lunar caustic. If it lies more on the outside, it will be best got rid of by means of a ligature of very fine waxed silk; for the bleeding of the wart will thus be avoided.

With regard to the treatment of warts generally, as, save at their bases, they are composed of non-sentient cuticle, the lunar caustic may be freely used to destroy them; or the saturated solution of chloride of zinc may be substituted, when the head of the tumour has

been removed, should the root display a disposition to sprout.

When, however, such growths attack the internal cavities of the body, the last exertion of authority then becomes the highest mercy. Certain people have pretended to cure such visitations. These quacks have produced vast suffering, and have exacted heavy charges; but the asserted remedy has in the end, after having embittered the animal's life, rendered necessary the resort which was suggested above.

CHAPTER IX.

COUGH—ASTHMA.

THE dog is as subject to colds, as are other animals.

Some of these creatures will cough violently after the slightest exertion, and the spasm terminates with an apparent attempt to vomit; but nothing is ejected, except a little frothy mucus, generally discoloured with bile. The dog is usually middle-aged, if not old when thus attacked; and the cough does not seem to affect the health in the slightest degree.

Emetics will afford the most certain and the greatest relief. A dose proportioned to the size of the animal may be given every third or fourth day.

After the third dose of emetic has been exhibited, it must not be longer continued, but some of the fol-

lowing drops should be administered three times in the course of every day.

RECIPE (No. 8).

Cough Drops.

TAKE—Extract of belladonna, one drachm and a half ;
Tincture of squills, four drachms ;
Tincture of ipecacuanha, two drachms and a half ;
Water, three-quarters of a pint.

Rub down the belladonna in the water, and when it is perfectly dissolved, mix.

Give half a teaspoonful to one or two teaspoonfuls for a dose.

At the same time attend to the food. Put out the allowance for the day first thing in the morning, but give this at four different periods, so that a loaded stomach may at no time distress the breathing.

CHAPTER X.

DISTEMPER.

THIS is rather a distressing than a fatal disease ; and it is one which most animals seem doomed to undergo at least once during their existence. An attack of it is indicated by a gradual loss of appetite, spirits, and flesh, without any peculiar local affection ; by mucus collecting at the corner of the eye ; and by a husky cough, which is rather an apparent attempt to remove something from the throat, than the sound indicative of true laryngeal disease. Soon after this, the usual watery discharge from the nose will cease ;—it

will gradually thicken and stick about, or plug up the nostril, till at length it becomes thick and purulent. These are the general characteristics of distemper in every dog, except the greyhound; in which it is often characterized by emaciation alone; then, however, it is rapid and exhausting.

Appetite is at the confirmation of the disease generally lost; fresh symptoms make their appearance. The dog begins to purge, and this symptom rapidly becomes worse. At first an absence of bile is plainly indicated by the discharges, which, however, soon consist only of the sheltering mucus of the intestines, soiled with more or less of blood. Fits come on, ushered in by a peculiar champing of the lower jaw; and which, if only a second appears, too frequently bid defiance to all medical aid. Sometimes the eyes become inflamed. A film spreads over them; a small ulcer appears in the centre of the transparent cornea: it deepens and spreads; the contents of the fore part of the eye are evacuated; and the sight then is too frequently lost.

There is scarcely a sportsman or a whipper-in who has not some infallible cure for distemper; but it must be sufficiently plain that the treatment of a disease so violent in its symptoms is not to be eradicated by pretended spells. However, because the appetite during distemper is too frequently depraved, and the stomach is often loaded with the most unnatural substances, our treatment should commence with a mild emetic. So soon as the system has recovered its quietude, beat into a mass the following ingredients, and administer the medicine as directed.

RECIPE (No. 9).

Distemper Pills.

TAKE—Quinine, one ounce ;
Powdered quassia, one ounce ;
Extract of gentian, three ounces.

Give five, ten, or twenty grains for a dose, according to the size of the dog. Three pills to be given daily.

At the same time there should be administered the annexed drops.
Liquor arsenicalis, twenty-four drops ;
Simple syrup, three ounces.

One to two or three teaspoonfuls constitute the dose for different dogs.

This treatment should be persevered in, for distemper approaches nearer to continued fever in the human being than any other disease to which the dog is subject. By a steady adoption of the above treatment, many of those symptoms which are aggravations induced by mistaken measures will be avoided. While, however, pursuing this treatment, the food should be nutritive, but not too abundant. A sufficiency, nevertheless, should be allowed, only no coaxing, no tempting to eat should be indulged.

If the case be not taken in time, but the fits should appear, the treatment is all but hopeless. However, then make some of the strongest possible jelly, and when sufficiently warm to be barely liquid, to every ounce of this add a teaspoonful of sulphuric ether. Force that upon a middling-sized dog every hour, increasing or diminishing the quantity according to the magnitude of the animal.

Should purgation start up, the subjoined mixture may be given after every discharge :—

RECIPE (No. 10).

Astringent Mixture.

TAKE—Prepared chalk, five drachms ;
Liquor of potash, five drachms ;
Laudanum, one drachm and a half ;
Tincture of catechu, one drachm and a half ;
Tincture of ginger, one drachm and a half ;
Sulphuric ether, seven drachms ;
Water, half a pint :

One or two or three teaspoonfuls constitute a dose according to the size of the dog.

When, however, fits and purgation conjointly appear towards the end of distemper, the case is almost hopeless : more especially should the animal be much emaciated prior to the advent of the symptoms. But in all other circumstances, and it is wonderful how multiform are the aspects which the disease can assume, a steady perseverance in the course which has here been indicated, will generally be rewarded with an ultimate and a perfect recovery.

CHOREA.

This word represents a twitching of various parts of the body. It is generally witnessed affecting organs in the dog according to the order they afterwards assume : as, the hind leg or legs, the mouth, the eye, &c. On certain occasions the entire body will be moved. The poor dog cannot stand, sleep, nor even lie down in peace. This involuntary and incessant disturbance continues night and day.

The Editor has seen this affection only as the accompaniment of distemper. Yet, though it comes

with that disorder, distemper may be banished, and the living animal, notwithstanding, carry about the heavy burden of a body whose motions are independent of the will.

Exercise is always bad in chorea. The body has more than a sufficiency of motion; let the animal therefore rest. Treat for distemper, and do nothing for the chorea, save only bestow a little extra attention upon the probably disabled animal.

The distemper having been destroyed, and the dog surviving, do all you can think of to strengthen and to support the system. The chorea may be outgrown as the young dog leaves puppyhood behind. Above all others, avoid every thing calculated to excite the sufferer. A blow, an intemperate chiding, or even a loud word, by alarming the nervous system, will always increase the twitchings, and these will not always subside after the cause is forgotten. Good food, healthy lodging, kind treatment, but no nursing, are the best restoratives in chorea, which, like the majority of nervous diseases, is oftener outgrown by the increasing strength, than cured by the employment of medicine.

CHAPTER XI.

FITS.

No animal is so subject to fits as the dog. A puppy when cutting or changing the teeth is very subject to fits: worms will produce them: dogs that are too

well fed, and have little regular exercise, will often fall into fits, if suffered to range at large. At the beginning of the season many sporting dogs have fits; and when they once appear in a kennel, frequently almost every dog will become affected by them.

When a dog is seized with a fit which soon passes off, place the animal under confinement and reduce the quantity of food. Forbid all kinds of indulgence, especially those of the table. Allow so much support for the day; mince it small, and give it at four different times; the whole being a rather spare support for one day.

When a sporting dog has a fit in the field, at once have the animal led home. Too many gentlemen treat their sporting dogs as though life had no natural rights appertaining to it. They confine the animal, feeding it upon such refuse as the general dealer will not purchase of the cook; and then expect the animal to answer every requirement when "the season" comes round. Such expectations are always vain. The exercise and the excitement of the chase acting upon a brain newly released from imprisonment naturally give rise to fits, and the loss of service is the proper reward of the master's perversity.

Dogs not only have fits, but they also have fit on fit without intermission for hours together; and in this state the existence may depart. When such is the case, bring the animal into quiet and under shelter without loss of time. Then procure an ounce of sulphuric ether, and add to it half a pint of cold water. Of this give every quarter of an hour one teaspoon-

ful, two, three, or four teaspoonfuls according to size. If the fits cease, as they often do after the first dose, allow no food, but keep the dog a close prisoner for six hours before you offer even a scanty meal.

Good food, healthy lodging, and sufficient exercise are the best preventives of fits. When they appear the general treatment should be scrupulously overlooked, for more may be thus accomplished than the Veterinary Surgeon is, as a general rule, able to bring about.

RHEUMATISM.

This is a frequent ailment with the dog. It is entailed upon him by his unnatural, petted state, and like gout in the human being is the penalty paid for over-indulgence. Constipation is generally present when the attack appears, the prominent symptoms of which are the piteous cries of the animal. He cries when he gets up; cries when he walks; cries when he is carried; and frequently if he is merely looked at. The remedy is in most cases very simple, and perfectly effectual. For the relief of this affection, the poor creature should be placed in a warm place, and have some opening medicine immediately administered. Castor oil is in this case generally useless, but nevertheless three doses should be given, allowing three hours to elapse between each. The quantity should be from one ounce to four ounces, and though the bowels be not moved, yet it not unfrequently does much good by preparing the system for the following bolus:—

RECIPE (No. 11).

Strong Purgative Pills for Rheumatism.

TAKE—Extract of colocynth, two scruples ;

Blue pill, one scruple ;

Powdered colchicum, one scruple :

Divide into four pills, and give according to the size of the dog, one, two, three, or four for a dose.

This may be repeated, but will seldom be required. With the relief of the bowels the acute pain will mitigate. Still the dog always appears to greatly suffer from cold in this affection. He will intrude his body under the fire-place if not observed and forbidden. This sensation shows the circulation is bad. To improve it, have the following rubbed into the skin, using friction for any length of time which may be convenient.

RECIPE (No. 12).

Embrocation for Rheumatism in the Dog.

TAKE—Oil of cantharides, two parts ;

Tincture of capsicums, one part ;

Soft soap, one part ;

Water, four parts :

First, incorporate the oil and soap ; then add the tincture, diluting the whole with the water.

The opening physic and the embrocation may require frequent repetition, for the dog once having had rheumatism is seldom radically cured.

CHAPTER XII.

INFLAMMATION OF THE LUNGS.

THE existence of this disease is easily recognized. There is heaving of the chest; also heat of the mouth and coldness of the feet. The poor dog seats himself upon his haunches; his head is elevated; and his muzzle is protruded; his breathing is hard and quick, and his countenance is anxious. Yet there he sits, and will sit hour after hour, until he is so completely wearied, that his legs slip from under him. Still he recovers himself; and will not fall until he falls to die. The causes which lead from cold to inflammation of the chest in any other life will produce it in the dog; and he is often predisposed to it by the mistaken nursing which is lavished upon him.

It is now of all importance that solid food should be withheld, and that even drink and liquid sustenance should be allowed only in moderate quantities. The treatment should commence with three ounce or four ounce draughts of dilute sulphuric ether (see p. 337), a quarter of an hour being permitted to elapse between each. These should be followed by doses of the tincture of aconite and of laudanum, administered every quarter of an hour.

RECIPE (No. 13).

For Inflamed Lungs.

TAKE—Tincture of aconite, from one to four drops;
Laudanum, from three to twelve drops;
Give in a little syrup.

Always examine the pulse before administering the above drink. So soon as that is lowered the embrocation (p. 339) may be rubbed into the sides, and repeated thrice daily, till vesication is produced. The sides becoming sore generally announce the termination of the disease, but should any cough remain, this may be well treated with the cough drops (p. 332), which seldom fail in confirming the cure.

CHAPTER XIII.

WORMS.

THE dog is seldom without *worms*; but excepting they exist in large quantities they do little harm. There are four varieties of worms in dogs.

The first is a small worm, two or three inches long, sharpened at both ends, and of a somewhat hard structure. This is usually found in the stomach of puppies. Occasionally they are vomited; either singly or rolled into masses. They have been found in the trachea, where they have produced a great deal of irritation and a most distressing cough; and they are very much concerned in the production of fits of young dogs.

If one of these worms is accidentally discovered, a mild emetic should be given,—the inhalation of fumes from spirits of turpentine, which are easily produced by holding a jar containing turpentine, having a little water in it, over a candle, the dog being in the room where this is done, should follow the emetic.

The next kind of worm is the long round worm, resembling that in the horse. This seldom produces irritation or disease ; unless it exists in great numbers.

The worm is best expelled by strengthening the system. It preys upon the weakly ; the food should not be too abundant, given at regular times, nutritive in quality, and all pampering or bits between meals should be carefully avoided. The following pills should also be given thrice daily, or these may from time to time be changed for the distemper medicine prescribed at page 334.

RECIPE (No. 14).

Stomach and Worm Pills.

TAKE—Powdered cinchona bark, six grains ;
Extract of belladonna, half a grain ;
Hydrochlorate of ammonia, one grain :

Make into one pill, with conserve of roses, and give one, two, or three of these, according to size.

The third kind of worm is composed of a multitude of joints—three or four hundred—and each joint capable of becoming a perfect worm. It is sometimes three or four feet in length. At the upper end is a narrow neck, terminating in a small head, furnished with tentacula, by means of which the animal adheres firmly to the intestine. Even when the bowels are in a manner filled by these worms, it is singular how little inconvenience the dog suffers. The bowels may be so occupied by them that there does not seem to be comfortable room for the whole of these parasites : so joint after joint is detached, and crawls from the anus, about half an inch in length, and flat ; and yet the

dog may appear to be in perfect health. It is not always, however, that the tape-worm is thus harmless to the animal. Very frequently its presence causes the belly to enlarge; the body to become thin; the breath offensive, while the appetite is excessive. On occasions it has penetrated the arteries, and caused death from excessive hæmorrhage.

It is very difficult to detach and expel this worm; for it is necessary that the whole of it should be detached, since if only the neck and head remain the parasite grows again. The spirit of turpentine is a remedy which is in these cases worthy of being depended upon. It must not be given in large doses, or it will kill the dog as surely as the worm; but a little should be made into a ball with some gum, and administered as soon as it is mixed; for otherwise the turpentine evaporates. Tonics night and morning ought also to accompany the treatment, and every means should be adopted to restore the lost health of the animal.

The last worm is the ascaris, or thread-worm, inhabiting the lower intestine. These are not, except they exist in large quantities, injurious to health; but they often tease the dog by the itching which they occasion about the anus. Medicine, if given by the mouth, has comparatively little effect upon them; but the readiest way to expel them is to inject some train oil or the solution of aloes up the intestine.

CHAPTER XIV.

COLIC—INFLAMMATION OF THE BOWELS—DIARRHŒA
—PROTRUSION OF THE RECTUM—PILES.

SPASMODIC colic in the dog frequently occurs in pups, but older animals are by no means exempt from it. The animals are uneasy and fidgety; shifting their posture and changing their resting-places; hiding themselves in corners; looking at their sides, and crying as they run. It may attack animals of all ages; but, from one month to three, dogs are most exposed to it. If it is neglected, it is usually fatal; and examination after death shows an intussusception, or receiving of one part of the small intestines within another. This causes an evident and insuperable obstruction to the passage of the fæces; at the same time it demonstrates the fearful degree of painful spasm that must have existed.

The remedy is both safe and certain. Administer a dose of dilute sulphuric ether every quarter of an hour (p. 337). Continue this treatment, and even increase the quantity should the symptoms not abate after the third dose.

Inflammation of the bowels.—Inflammation of the muscular or peritoneal coat of the intestines does not happen so frequently as the food and habits of the animal would naturally warrant a belief. One of the most frequent causes of it is costiveness, for which a dose of castor oil is a safe and sure remedy. It is difficult to fix on the precise symptoms of this complaint. The dog is frequently bringing his stomach

in contact with the floor, while his hind parts are elevated: he is feverish, the countenance is anxious; the belly tucked up, being hot and painful when touched, and the pulse, although small, is hard and wiry.

The dose of castor oil having been administered, it should without loss of time be followed by the aconite drops (p. 340), which should be administered every quarter of an hour until the pulse changes its character. The food should be poor and also entirely fluid.

Diarrhœa may in the dog start up all at once, or it may be preceded by sickness. Should the vomiting first be exhibited, of course that should be first attended to, but the instant purging comes on neglect all else to attend to this new and dangerous symptom. At once administer and persevere with the astringent medicine (p. 335). When the diarrhœa has stopped, do not interfere with the bowels under an idea that costiveness prevails. Remember the intestinal tubes have recently been emptied, and after this, nature can afford even a fortnight's rest without the slightest danger resulting.

SICKNESS.

It is most distressing when a favourite dog is seized with an attack of vomition. The appetite is seldom destroyed, but nothing will remain on the stomach. A little boiled milk, with from five to twenty drops of laudanum in it, will sometimes quiet the stomach; but if that fails, recourse should immediately be had to hydrocyanic acid. Drop four drops into one ounce

of water, and give one, two, three, or four teaspoonfuls for a dose, repeating the dose every quarter of an hour until four doses have been given.

This not stopping the spasm, next a trial may be made of chloroform, two, four, six, or eight drops of which may be administered in a little milk, or sugar and water.

This failing, place the dog under the action of chloroform, and with the powers of life the spasm may be permanently arrested.

Petted dogs are very subject to *piles*; produced by the stimulating nature of their food. There is considerable swelling and tenderness of the part; a little liquid often oozes from it; blood may *follow*, but never mingles with, the stools.

Piles require for their removal a bread and milk diet. No meat should be given, and the following ointment should be used thrice daily.

RECIPE (No. 15).

Ointment for Piles in Dogs.

TAKE—Simple ointment, one ounce;
Strong mercurial ointment, one drachm;
Powdered camphor, one drachm:

Mix. Insert some up the intestine, and smear a little over the part.

A considerable tumour sometimes arises by the side of the anus; it is to be entirely attributed to an over-indulgence of the carnivorous propensity in the animal. It is exceedingly painful—swells to a very considerable size—is at first of a red colour; but becomes dark and purple; till it breaks, and discharges a quantity of impure pus; leaving a large and deep

ulcer. These tumours are a species of carbuncle. The ulcer will readily heal if the bowels are kept open, the mode of feeding is radically changed, and the ulcer is thrice daily moistened with the following preparation.

RECIPE (No. 16).

Lotion for Wounds.

TAKE—Chloride of zinc, one grain;
Water, one ounce.

CHAPTER XV.

PARTURITION.

THE bitch goes with young nine weeks. It is seldom before the fifth week that the belly begins to enlarge. The foetus may, however, be felt at the end of a month, and can plainly be detected to move a week before parturition. A day or two before the expiration of her time of utero-gestation, she usually gets fidgety and uneasy; she selects her bed; and about this period the secretion of milk has generally commenced. If she has not been petted, and thus disposed to inflammation, there is little or no danger attending the act of parturition.

Petted bitches, however, frequently experience much difficulty in bringing forth their young, and manual assistance is then necessary. The precise time when pupping is anticipated should be inquired; and the animal not interfered with until some hours after the full expiration of the period.

When, however, it is deemed expedient to inter-

fere, the first thing that should be done is to examine whether the pelvis is in any way occupied; if no pup is discovered in the course of being born, the mother must be left undisturbed for a few hours longer. If on a second examination no progress has been made, a stimulant should be given; and the best stimulant on these occasions is the *Secale cornutum*, or ergot of rye.

RECIPE (No. 17).

Ergot of Rye Mixture.

TAKE—Ergot of rye, a scruple; pour on it
Boiling water, one ounce;
Let it infuse for twenty minutes; then add,
Brandy, half an ounce;
Sugar, two or three lumps.

A very large dog may take the half of the above at one dose; and the remaining portion may be given twenty minutes afterwards, if the first produces no decided effect. For a very small dog, two teaspoonfuls will be sufficient.

As soon as the puppy is in the pelvic cavity, and a portion of it presents from the orifice; the position of the birth may be ascertained. If it is a natural presentation, time may be allowed; but should the offspring be dead, gentle traction may be made to remove the body. Yet it will never be prudent to exert much force; for there will then be a hazard of breaking the puppy, and that being done, the life of the mother is irrecoverably lost.

If the hinder legs present, there will be somewhat more difficulty. The puppy must be partly drawn; but only sufficient to assist the efforts of the mother,

until the chest is in the passage. When thus much is accomplished, the rest will generally be easy.

Instruments should never be resorted to until the strength of the bitch is evidently exhausted, or till the throes have ceased, when the pups assuredly are dead. Then a hook, resembling a button-hook, but with the extremity much more rounded, must be taken; and the forefinger of the left hand having been introduced, the hook is slid along, being completely guarded by the finger; the instrument is thus introduced into the mouth of a foetus, in case the presentation is natural; and into the pelvic cavity should the breach be most forwards. The pup being then gently, but somewhat firmly, pulled forward may often be extracted.

Soothing and gentle treatment will avail more here than any force that could be used.

Inversion of the womb sometimes takes place. If it is immediately and carefully returned, there may be little danger; but if considerable straining should continue, a full stream of the coldest water should be injected until the dog by crying announces that the uterus has contracted. This having been heard, the animal should be left to enjoy repose and quiet for some hours.

After the bitch has pupped she should be left as much as possible to herself; for she will then be far more likely to do well than when disturbed by the kindest nursing. She may be suffered to eat and drink as usual; for it is rarely that any fever ensues, save from two causes.

If her young ones, or all except one, are cruelly taken from her, because there may perchance be a stain in their pedigree, nature will continue to secrete

milk enough for the whole litter. This will accumulate, and cause local swellings and inflammation; it will likewise be a source of fever, that cannot always be subdued.

The best remedy is to limit the food, and at the same time to draw the milk. The last operation having been performed twice or thrice, relief will have been afforded, and no further attention be required.

Sometimes, however, a contrary course is pursued. The owner sets great value on the breed, and is anxious to save every puppy; then, instead of finding out a foster-mother for some, if the young should be numerous, he suffers the whole litter to exhaust the supply. A bitch that is used to hardship, or whose constitution has not been impaired by being too much indulged, will not be hurt by this; but a petted bitch is rarely capable of suckling with safety more than half of her produce.

If too many remain with her, she, after a while, becomes somewhat stupid; is inattentive to her young; she rapidly loses flesh; she will not eat; she has a wild look; when all at once she will lay herself down, and begin to pant dreadfully, as if she was about to die in a few minutes; or strong yelping fits come upon her.

This is the consequence of extreme irritability, caused by exhaustion; thus every thing that would tend to weaken the bitch would increase that irritability, and aggravate every symptom. The best allayer of irritability in this case is a stimulant; a little wine or even spirit and water will be of service; and if after that all her puppies are always fed with

milk and water from an infant's bottle, before the mother is permitted to approach her family, she will generally do very well.

CHAPTER XVI.

DISEASES OF THE SKIN.

THERE is scarcely a dealer, a keeper, or a whipper-in, who has not some infallible specific for the mange, and one or two applications are to perform a complete cure. The Editor knows nothing of those wonderful compositions; and if he did, he should be afraid to employ them, because medicines sold by the ignorant are seldom safe, being generally composed of articles of the "kill or cure" description.

Itching, although it may exist to a considerable degree, and even with some redness of the skin, will occasionally yield to medicine, accompanied with a little strictly proportioned food.

If, however, a week should pass, and the itchiness and redness continue, the following ointment must be immediately applied.

RECIPE (No. 18).

Ointment for Mange.

TAKE—Compound turpentine ointment, two parts ;
Sublimed sulphur, one part ;
Oil of aniseed, a sufficiency :

Mix.

The hair must be carefully parted, and some of the ointment gently but well rubbed into the skin. This should be continued daily for a week. At the ex-

piration of that period the dog may be washed. The proof of a cure having been perfected, will be the cleansing away of all the scabs; the wholesome and natural appearance of the skin, and the cessation of the itching.

In red mange there is seldom any scabbiness, but intense redness with heat, and itchiness of the skin; more particularly on the belly, the flanks, and the inside of the thighs. A mild dose of castor oil should precede other measures. The food should be spare in quantity, but nourishing in quality, and the following drops should be administered in syrup thrice daily.

RECIPE (No. 19).

Drops to act on the Skin.

TAKE—Liquor arsenicalis, two parts ;

Muriated tincture of iron, three parts.

Two, five, or ten drops, according to size, to be given at the periods stated.

The treatment should be exactly similar to that just described. The exercise and lodging, however, should be especially scrupulously attended to; the bed, besides being frequently changed, should be always scrupulously clean. The drops should also be regularly given, and after a fortnight the amount may be increased until the appetite is destroyed. Then a pause of two or three days should be permitted, after which the medicine should be resumed, one drop less than the maximum dose being given. Another fortnight having elapsed, the medicine may again be increased, and the former line of conduct literally repeated. Also place the following on the skin of the dog.

RECIPE (No. 20).

Wash for Red Mange.

TAKE—Glycerine, one pint ;

Chloride of zinc, one scruple :

Dissolve the salt in the liquid, and apply the solution by means of a painting-brush morning and night.

MANGE.

A very peculiar species of mange will sometimes appear. A dog is perfectly well to-day, and his skin every where whole and sound ; to-morrow a bare raw patch is found upon him, usually about his haunches, varying from the size of a shilling to that of the palm of the hand. It is not exceedingly sore ; it seems, from the dog's manner, to itch dreadfully ; the bare skin greatly thickens and becomes much corrugated. Practitioners call it "the acute mange."

It has an unpleasant appearance, but it readily yields to treatment. The arsenical drops recommended for skin disease should be used, and in a fortnight the disease will generally disappear.

Mange will frequently attack *the feet* of dogs. During the earlier stage it usually appears in the form of inflammation of the web between the toes, which becomes intensely red, an ichorous fluid exudes from it, and the dog is very lame. The wash for red mange will be the best application ; but the foot should be incased in a strong gutta percha or leathern boot, as if it be formed of more delicate material, the teeth of an irritated dog will speedily destroy it.

Sore feet, arising from working over rough or stubble ground, are best cured by the solution of chloride of zinc, one grain to the ounce of water.

When mange in the feet, or *sore feet*, are neglected, the disease spreads to the toes, and more particularly to the roots of the nails, the nail being occasionally lost, and the dog for an uncertain period rendered acutely lame. All broken nails should be cut away, and all that are loosened should be removed, as they never become fixed again, and only increase the pain if suffered to continue, the foot being subsequently frequently bathed with the solution of chloride of zinc, or should nothing be done, the wound generally heals without treatment.

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